Pacific
Salmon
Commission

2009/2010
Twenty Fifth Annual
Report

Pacific Salmon Commission

Established by Treaty between Canada and
the United States
March 18, 1985
for the
conservation, management and
optimum production of
Pacific salmon

Twenty Fifth Annual Report 2009/2010

Vancouver, B.C.
Canada

August 2013

PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 18, 1985

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Letter of Transmittal

In compliance with Article II, Paragraph 14 of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific salmon, it is my pleasure as Chair of the Pacific Salmon Commission to present my compliments to the Parties and to transmit herewith the Twenty Fifth Annual Report of the Commission.

This report summarizes the activities of the Commission for the fiscal year April 1, 2009 to March 31, 2010. It includes reports on the results of the 2009 fishing season presented by the Parties and on meetings of the Commission and the Standing Committee on Finance and Administration. Also included are the annual reports of the Northern and Southern Fund Committees. Executive summaries of documents prepared by Pacific Salmon Commission staff and the joint technical committees during the period covered by this report are also presented.

A summary of the agreement is available on the PSC website: www.psc.org.

The Auditors' report on financial activities of the Commission during the fiscal year April 1, 2009 to March 31, 2010, approved by the Commission, is also included in this report.

Yours Truly,

Mr. Larry Rutter
Chair

PACIFIC SALMON COMMISSION

OFFICERS for 2009/2010

Chair	Mr. Larry Rutter
Vice-Chair	Mr. Paul Sprout

COMMISSIONERS

Canada	United States
Mr. Ron Fowler	Mr. David Bedford
Mr. Gerry Kristianson	Dr. Jeffrey Koenings
Mr. Saul Terry	Mr. Olney Patt Jr.
Mr. Garnet Jones	Mr. Ron Allen
Mr. Russ Jones	Mr. James E. Bacon
Mr. Paul Macgillivray	Mr. Roy Elicker
Dr. Brian E. Riddell	Mr. John Field

SECRETARIAT STAFF

Executive Secretary	Mr. Don Kowal
Administrative Officer	Mr Ken Medlock
Chief Biologist	Mr. Mike Lapointe

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INTRODUCTION

Since the early 20th century, Canada and the United States have discussed and collaborated on Pacific salmon conservation and management. Interception of Pacific salmon bound for rivers of one country in fisheries of the other has been a particularly important issue over the years. Scientific research identified a number of intercepting fisheries on species and stocks originating from Alaska, British Columbia, Washington, Oregon and Idaho. This research indicated that Alaskan fishers were catching some of the salmon bound for British Columbia, Idaho, Oregon and Washington. Canadian fishers off the West Coast of Vancouver Island were capturing some of the salmon bound for rivers of Washington and Oregon, while fishers in northern British Columbia were intercepting certain fish returning to Alaska, Washington, Oregon and Idaho. U.S. fishers were catching Fraser River salmon as they traveled through the Strait of Juan de Fuca and the San Juan Islands towards the Fraser River.

Cooperative management of stocks subject to interception became a matter of common concern to Canada and the United States, and governments desired a mechanism to enable each country to reap the benefits of its respective management and enhancement efforts. That mechanism is now provided through the *Treaty Between the Government of Canada and the Government of the United States of American Concerning Pacific Salmon* (hereafter the "Pacific Salmon Treaty" or "the Treaty"), which entered into force upon the exchange of instruments of ratification by the President of the United States of America and the Prime Minister of Canada on March 18, 1985.

The treaty, *inter alia*, established a) a bilateral fishery management organization known as the Pacific Salmon Commission (the Commission), and b) bilateral fishery management regimes for conservation and harvest sharing of salmon stocks. Each country (Party) retains jurisdictional management authority but must manage its fisheries in a manner consistent with the provisions of the Treaty. The Treaty is intended to enable bilateral conservation and enhancement to prevent overfishing, increase production, and ensure that each country receives benefits equivalent to its own salmon production. The Commission also serves as a forum for consultation between the Parties on their salmonid enhancement operations and research programs.

The Commission comprises four Commissioners (and alternates) from each country as the principle deliberative body. The Commission has also established numerous subsidiary committees, and four geographically oriented panels. The Panels report to the Commission and provide advice on the conservation and management of selected stocks of concern, with certain exceptions as noted below:

Transboundary Panel: stocks originating from the Alsek, Stikine and Taku River systems.

Northern Panel: stocks originating in rivers situated between Cape Suckling in Alaska and Cape Caution in British Columbia.

Southern Panel: stocks originating in rivers located south of Cape Caution, other than Fraser River sockeye and pink salmon.

Fraser River Panel: has special in-season regulatory responsibilities for stocks of sockeye and pink salmon originating from the Fraser River.

Yukon River Panel: makes recommendations to authorities in Alaska and the Canadian government concerning the conservation and coordinated management of salmon originating in the Yukon River in Canada, but does not report to the Commission.

The panels review annual post-season reports, annual pre-season fishing plans and ongoing and planned salmonid enhancement programs of each country. They also provide recommendations to the Commission for development of fishery regimes in accordance with the objectives of the Treaty. These regimes, once adopted by the Commission and accepted by the Parties, are implemented by the relevant fishery management agencies in each country.

The Parties accord the Fraser River Panel special responsibility for in-season regulation of Fraser River sockeye and pink fisheries of Canada and the United States in southern British Columbia and northern Puget Sound, in an area designated as Fraser River Panel Area Waters. Scientific and technical work is conducted for the Panel by the Fishery Management Division of the Commission's Secretariat staff.

With long-term fishery arrangements in place through periodic amendment of the Treaty, the meeting agendas for the Commission have concentrated on implementation that will improve fisheries management and aid the countries' efforts to recover weakened stocks. These provisions include establishment of two bilaterally-managed restoration and enhancement funds, provisions to enhance bilateral cooperation, and improvements to the scientific basis for salmon management.

The Commission generally meets three times annually and conducts its business between meetings through its permanent Secretariat located in Vancouver, British Columbia. In the period April 1, 2009 to March 31, 2010, the Commission met on three occasions:

1. Commission Fall Meeting
   October 20-21, 2009 – Sitka, Alaska

2. Post-Season Meeting of the Commission and Panels
   January 11-15, 2010 – Vancouver, B.C.

3. 25th Annual Meeting of the Commission
   February 8-12, 2010 – Portland, Oregon

This, the Twenty-Fifth Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its Twenty-fifth fiscal year of operation, April 1, 2009 to March 31, 2010.

Activities of the Commission

PART I
ACTIVITIES OF THE COMMISSION

A. EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION
October 20-21, 2009, Sitka, Alaska

Two sittings were held during the meeting period.

The Commission discussed the implementation of the Coded Wire Tag (CWT) Improvement program. Both Parties named representatives to serve on the CWT Improvement Implementation Team (CWTIT).The Team was instructed to develop the specifics of how CWT program improvement funding would be allocated based on the CWT Workgroup report (PSC Technical Report 25). CWTIIT was directed to provide recommendations about how to deploy the CWT Implementation funds at the February session.

Mr. John Carlile, Chinook Technical Committee (CTC) Co-Chair, reported on the status of the chinook modeling improvement initiative. At the request of the CTC, the Commission agreed that the funds approved for the chinook model improvement initiative would be spent over four years instead of over two years as originally stipulated in the 2008 agreement. The CTC was directed to identify the tasks related to the model improvements, to identify a schedule and costs, and to develop a plain language description of the end-product.

Mr. Barry Rosenberger and Ms. Lorraine Loomis, Chair and Vice Chair of the Fraser River Panel reported on the Panel's progress in renegotiating the Fraser River Annex. The Panel was very close to an agreement. The Commission agreed to engage a U.S. and a Canadian Commissioner to meet with the bilateral Fraser River Panel between October 2009 and January 2010 to try to bring the Parties closer together on outstanding issues.

Dr. Koenings provided an update about the activities of the Ad Hoc Habitat Scoping Committee. As directed by the Commission, the Scoping Committee convened a workshop consisting of habitat experts and fisheries managers in September. The workshop recommendations were intended to provide guidance to the Commission about what role it could take that would provide value in the habitat arena. Dr. Koenings provided a summary report of the workshop. The Commission directed the Ad Hoc Scoping Committee to examine the costs of putting the workshop recommendations into effect and to report back to the Commission at a future meeting.

The Commission discussed the annual workplans submitted by the Panels and Committees and adopted instructions to the Panels and Committees.

The poor return of Fraser River sockeye in 2009 was discussed. The Commission agreed that what occurred during 2009 was of great concern and importance. At its January meeting, the Commission would discuss what bilateral actions it would take regarding an investigation of the 2009 Fraser River sockeye season.

The slate of Commission officers for 2009/2010 was approved.

B. MEETING OF THE COMMISSION AND PANELS
January 11-15, 2010, Vancouver, B.C.

The Commission met once in executive session and twice in open session during the meeting period.

The Parties tabled their 2009 Post Season Fishing Reports.

The Commission discussed and accepted the progress reports received from the Sentinel Stocks Committee, the Coded Wire Tag Improvement Implementation Team, and from the Chinook Technical Committee co-chairs who reported on the chinook model improvement initiative.

The Commission discussed the status of the renegotiation of the Fraser River Chapter. The Fraser River Chapter was scheduled to expire after the 2010 fishing season. In November 2009, Canada announced a public inquiry (the Cohen Commission) into the decline of Fraser River sockeye. The Inquiry has several mandates including examining what had happened to Fraser River sockeye, to consider the future sustainability of the resource, and to examine Fisheries and Oceans Canada's policies, practices and procedures.

The important aspect of the Inquiry that affected the renewal of the Fraser Chapter was its timeline. The Pacific Salmon Commission's goal was to come to a long-term arrangement after the Chapter expired. However, the Cohen Commission would not release its final report until May 2011. Canada preferred to develop short-term arrangements that would cover the years 2011 and 2012 with the view that it would be in a position to consider advice or the perspective of the Inquiry when it entertains a longer-term arrangement for Fraser River fisheries. The Commission agreed to further discuss various options about how to renew the Fraser River Chapter at a future session.

The Commission discussed how it could begin to act to investigate the scientific reasons behind the low return of Fraser River sockeye in 2009. The Commission agreed to charge the Committee on Scientific Cooperation with developing a draft terms of reference for a workshop that would be held to investigate the decline in the survival of Fraser River sockeye. The terms of reference would be considered by the Commission at the February session.

The Commission agreed that the Fraser River Panel did a remarkable job in terms of responding to the circumstances of the 2009 season. The low return was detected and no fisheries were held. The management response was correct and courageous.

Dr. Koenings reported on behalf of the Ad Hoc Habitat Scoping Committee on progress made in establishing a Habitat and Restoration Technical Committee (HRTC). The Scoping Committee would bring a recommendation to the Commission at the October session so that the Commission could establish a standing committee on habitat.

The Commission heard progress reports on workplan tasks from the Northern Panel, the Transboundary Panel, the Southern Panel, and the Fraser River Panel.

C. PACIFIC SALMON COMMISSION ANNUAL MEETING

February 8-12, 2010, Portland, Oregon

The Commission held one executive session and three open sessions during the week.

The Commission received a report from the Coded Wire Tag Implementation Team (CWTIT) about projects recommended for funding in 2010. CWTIT planned to hold annual, bilateral workshops late each year to monitor the progress made in improving the CWT program as a result of the CWT improvement projects. The Commission endorsed the 2010 CWT program improvement process as outlined.

The Commission received a progress report from the Sentinel Stocks Committee (SSC). The report included a list of recommended projects and funding levels for the Sentinel Stocks Program (SSP) in 2010. The Commission discussed the challenges it had funding the Sentinel Stocks program.

Under the 2008 Agreement, the SSP was to be funded with $2 million a year for five years with money from the Northern and Southern Endowment Funds. However, the SSP's first year of operation was funded with resources that came from sources other than the Endowment Funds because the Funds were not at a level where they were able to contribute to the SSP due to the worldwide economic situation. As a consequence, the SSP was not funded up to a $2 million level in 2009. The Commission agreed that the SSP should be funded up to the level of $2 million for 2009. The SSC was directed to advise the Commission about what would be the best use of additional funding.

Mr. Angus MacKay, Fund Committee Coordinator, presented the Annual Report of the Southern Boundary Restoration and Enhancement Fund and the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund for 2009.

Dr. Gary Morishima, Co-Chair of the Selective Fishery Evaluation Committee (SFEC), reported that the review of 2009 Mass Marking (MM) and Mark Selective Fisheries (MSF's) proposals was recently published. The Committee was finalizing a report on proposals received for the 2010 fishing season.

Post-season reporting continued to be a problem in terms of getting information that the PSC technical committees need to evaluate the effects of MSFs. SFEC was in the process of trying to clarify the information required and to simplify reporting in an attempt to streamline the process. SFEC hoped to submit proposed modifications to formats and instructions for the completion of reports and forms to the Commission for its consideration.

The Commission discussed draft terms of reference prepared by the Committee on Scientific Cooperation for a workshop to examine the decline in survival of Fraser River sockeye. It was agreed that the workshop would be built around a lead scientist, a professional facilitator, and a panel whose members would have wide-ranging expertise. The Panel would be supported by a group of participants who possess scientific credibility and perspective and who would be drawn from various interests.

The Commission agreed that a two-day scientific workshop would be held in late-spring. Twenty to thirty scientists would be invited to participate. Approximately six of these scientists would be designated to act as an Expert Panel. The Expert Panel would meet an additional day and would work with a lead scientist to summarize the workshop proceedings and to compile a list of the likely causes of the decline in Fraser sockeye survival, ranked from the most plausible to the least plausible. The lead scientist would write a final report on the workshop findings. The Expert Panel would review the report before its release to ensure that it is an accurate reflection of the results of the workshop.

A bilateral workshop coordinating committee was formed. Its membership included Mr. Rutter, Dr. Koenings and Mr. Pennoyer from the U.S. and Mr. Saunders and Mr. Sprout from Canada.

The Commission accepted the recommendations in a report submitted by the Ad Hoc Habitat Scoping Committee and established the Joint Habitat and Restoration Technical Committee. The ad Hoc Scoping Committee would continue to work to determine what role, if any, the HRTC could have in supporting the work of the Northern and Southern Endowment Fund Committees.

Activities of the Standing Committees

PART II
ACTIVITIES OF THE STANDING COMMITTEES

A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

1. Committee Activities

The Committee met by conference call on December 10, 2009 and twice at the Sheraton Wall Centre in Vancouver on January 11, 2010 and January 13, 2010, to consider a range of financial and administrative issues. The Committee's deliberations focused on the budget forecast for FY 2010/2011.

The Committee approved the Commission budget at the contribution level of C$1,786,031, per party (Appendix B) with expenditures of C$3,781,859. This represents an increased contribution per party over last year of $38,521. The Committee recommended acceptance of this budget, subject to availability of funds. This budget excludes any test fishing program costs, which traditionally have been reported separately by staff.

The committee also agreed that prior to the Finance and Administration Committee deliberations for next year's budget, the Pacific Salmon Commission staff will consult with Finance and Administration Committee members and provide more in depth details regarding the Pacific Salmon Commission budget and its related programs. In addition, these discussions will include exploring an alternate annual budget approval process.

The test fishing program was also discussed. This program is being reviewed by the Fraser Panel. The budget aspects of the program will be finalized once input from the Fraser Panel has been received.

The Committee also reviewed staff projections of expenditures for the balance of the current fiscal year. The staff reported a forecast carry-over of C$202,797 to next year. It was therefore recommended that the carryover from 2009/2010 be carried to fiscal 2010/2011 to offset costs incurred during the 2010/2011 fiscal year.

The Committee reviewed the PSC Meeting Schedule. The United States will advise the secretariat in February of their preferred location for the Executive Session on October 18-20, 2011. Canada will review and advise on a Canadian location for the October 16-18, 2012 Executive Session at a later date.

2. Secretariat Staffing Activities

A list of Secretariat staff employees as of March 31, 2010 is presented in Appendix C.

An updated membership list for panels, standing committees, joint technical committees and ad hoc working groups as of March 31, 2010 is presented in Appendix D.

B. MEETINGS OF THE STANDING COMMITTEE ON SCIENTIFIC COOPERATION

At the October 2009 and February 2010 meetings of the Pacific Salmon Commission, members of the Committee on Scientific Cooperation reported on their participation in two workshops. One workshop focused on late-run Fraser sockeye and the other was about climate impacts on Fraser salmon.

At the January 2010 meeting the CSC was tasked with developing draft terms of reference for a Pacific Salmon Commission Workshop to examine the Decline in Survival of Fraser River Sockeye.

In February, the CSC presented three options to the Commission that it could follow when organizing the workshop. The Commission discussed the options and agreed that the workshop would be built around a lead scientist, a professional facilitator, and a panel whose members would have wide-ranging expertise. The Panel would be supported by a group of participants who possess scientific credibility and perspective and who would be drawn from various interests.

The Commission agreed to hold a two-day scientific workshop in late-spring 2010. Twenty to thirty scientists would be invited to participate. Approximately six of these scientists would be designated to act as an Expert Panel. The Expert Panel would meet an additional day and would work with a lead scientist to summarize the workshop proceedings and to compile a list of the likely causes of the decline in Fraser sockeye survival, ranked from the most plausible to the least plausible. The lead scientist would write a final report on the workshop findings. The Expert Panel would review the report before its release to ensure that it was an accurate reflection of the results of the workshop.

Members of the CSC were named to a small group that was charged with operationalizing the workshop.

C. MEETINGS OF THE NORTHERN AND SOUTHERN FUND COMMITTEES

The Northern and Southern Fund Committees have agreed that given the congruent nature of their agendas and their decision to combine the funds into a single master account for investment management purposes, and the efficiencies involved with respect to interaction with the fund managers, it was appropriate to meet together as a Joint Fund Committee. Thus the Joint Fund Committee met in person on two occasions: April 15th and November 18th, 2009.

The Joint Committee's first meeting in 2009 was held on April 15th, 2009 at the PSC offices in Vancouver. Mr. Chris Kautzky of Hewitt Associates, the Fund's investment consultants, presented the Fund performance review for the fourth quarter of 2008 and gave a preview of the first quarter of 2009. Mr. Kautzky said that the markets had picked up in March 2009 and that trend continued in April. His opinion was that the market was six weeks into a rebound. Mr. Kautzky also led the Committee through the document titled Alternative Asset Classes describing the attributes, returns and fees, key features and drawbacks, and managers involved with three alternative asset classes namely Infrastructure, Hedge Funds and Real Estate. Summarizing, he cautioned against hedge funds, but continued to believe that infrastructure and real estate provide attractive risk/return characteristics to the Fund in the long term. There was consensus among the Committee in favour of moving into the alternative asset classes, however no motion to this effect was proposed. The Committee instructed Hewitt Associates to proceed with the development of an implementation strategy for review at the November joint meeting.

The other Joint Fund Committee meeting of the year was an in-person meeting held at the PSC offices in Vancouver, BC on November 18th, 2009. As usual the November meeting was marked by the annual Fund investment manager performance reports and interviews. In summarizing their thoughts on the managers' presentations, the Committee was satisfied with the performance of LSV. The Committee was also generally satisfied with the report from Brandes and agreed with the presenters that the market presently offered good opportunities for investment and that Brandes was well placed to capitalize upon them. There was a feeling among the Committee that better performance should now be expected. Of the three managers, Mr. Kautzky was most concerned with Barclays, believing that there existed the potential for uncertainty in their future from a recent ownership change that saw Barclays Global Investors spun off from the parent group and sold to BlackRock Asset Management. This coupled with their poor performance might lead him to advise new investors away from the firm. For those clients already with holdings in Barclays/BlackRock he suggests staying the course and watching developments. The Committee agreed with this strategy and were willing to let the firm prove itself in the aftermath of the recent anomalous market conditions and were not about to reverse their earlier decision to invest in Alpha Tilts.

For the remainder of the meeting Mr. Kautzky presented and led discussion on his "Spending Policy and Asset Allocation Review – An Implementation Strategy". The document described a strategy for monitoring equity investment conditions and for implementing allocations to two new asset classes, namely real estate and infrastructure, over time. It was determined that a formal motion to implement the portfolio changes as per Mr. Kautzky's strategy had not yet been made; the instruction to prepare the implementation strategy being in the form of an action item so far. There was a consensus that the Committee wished to deliberate on the question of implementation further and Mr. Kautzky was asked to prepare additional background information on transaction costs and fees associated with the alternative asset strategy for the April 2010 Joint Fund Committee meeting.

Annual funding for all new and on-going projects in 2009 was suspended by the Northern and Southern Fund Committees due to the impact of the global financial crisis of 2008/09 on Fund investments. Total Fund project expenditures to date remain at the 2008 level of $34.5M US, in support of 479 projects.

In February 2009 there were $13M US worth of active projects between the Northern and Southern Funds. Much of this was 2008 funding with some carry forward funding from 2007. By year's end there were 36 active projects worth about $4M US still on the books, although about half of these will end on March 31st 2010. During 2009 most active projects reached their scheduled end dates, often linked to the ends of each quarter. A larger proportion than usual also applied for extensions to their end dates. In many of these cases project leaders sought to eke out their grants as a way to bridge the 2009 funding shortfall.

In 2008 the Northern and Southern Fund Committees approved motions to support the "Chinook Sentinel Stocks Program" with funds in the amount of $1M US each, per year, for a period of 5 years beginning in 2009. This commitment was dependent upon Fund performance given that the guarantee of interest income on the Fund in any given year is not assured. In January 2009 the value of the Fund stood at $127,130M US, some $13M US below the contributed capital sum. Neither Northern nor Southern Fund was therefore able to support the SSP financially in 2009. However, Fund staff did take responsibility for the administration of the program, banking the funds provided by the US and Canadian governments, entering into contracts with the selected Sentinel Stock project leaders, advancing funds and overseeing interim and final reporting requirements.

Equity markets rebounded strongly in 2009 resulting in positive one year returns in both currencies for the Fund and the benchmarks. However, the Fund underperformed the benchmark for the second year in a row, owing mostly to weak results by Brandes, also for the second consecutive year. The four-year returns reflect the weak capital markets, and manager performance, over the past two years.

Mr. Frank Quinn was appointed by Canada to the Northern Fund Committee early in 2009, replacing Ms. Lorelei Smith.

Activities of the Panels

PART III
ACTIVITIES OF THE PANELS

A. FRASER RIVER PANEL

The Fraser River Panel completed the 2009 fishery management plan for Fraser River sockeye and pink salmon in Panel Area waters on June 18, 2009. The Panel carried out its in-season fishery management responsibilities as per Annex IV, Chapter 4 and the February 15, 2008 Commission Guidance to the Fraser River Panel. Commission staff conducted its regular in-season assessment programs and reported results to the Panel.

The Panel met in bilateral session during the January and February 2010 meetings of the Commission to review the results of the 2009 fishing season, to receive reports from Canada on spawning escapements and to discuss issues of concern for the 2010 fishing season. Commission staff reviewed concerns regarding the likely continued early upstream migration behavior of Late-run sockeye and provided the Panel with policy options for 2010.

B. NORTHERN PANEL

No report was received by the time of publication.

C. SOUTHERN PANEL

No report was received by the time of publication.

D. TRANSBOUNDARY PANEL

The Transboundary Panel met extensively in bilateral session during the January and February 2010 meetings of the Commission. During January bilateral sessions, the Panel received several reports by staff of the Alaska Department of Fish and Game and the Canadian Department of Fisheries and Oceans concerning fisheries, stock assessments and joint enhancement activities that took place in both countries in 2009. During the February bilateral meetings, the Panel heard presentations on suggested changes to escapement goals for Alsek sockeye, Alsek Chinook, and Taku Coho as well as a presentation by the Alaska Department of Fish and Game on the data base used by that agency for fishery management and assessment. The Panel was provided with an analysis of overage/underage prepared by the Transboundary Technical Committee. The Canadian Panel provided a position paper concerning overage/underage to the U.S. Panel. The Panel exchanged management intent with regard to taking added conservative actions for Taku Chinook during the 2010 fishing season.

Review of 2009 Fisheries and Treaty-Related Performance

PART IV
REVIEW OF 2009 FISHERIES AND TREATY-RELATED PERFORMANCE

The following review has been drawn from a number of reports prepared by Commission staff, joint technical committees, and domestic agencies for presentation to the Commission. Source documents are referenced for each part of this review. All figures are preliminary and will be updated in future reports as more complete tabulations become available.

A. FRASER RIVER SOCKEYE SALMON

Pre-season Planning

1. Pre-season expectations for Fraser River sockeye salmon included a total abundance of 10,488,000 fish and Johnstone Strait diversion rate of 32%. Pre-season planning was based on the 75p-level abundance forecast for Early Stuart sockeye and 50p-level (median) forecasts for all other groups. Forecast abundances and expected Area 20 50% migration dates by management group were: Early Stuart - 165,000 (July 2); Early Summer – 739,000 (July 26); Summer – 8,677,000 (August 5); Birkenhead – 334,000 (August 11); and Late – 573,000 (August 11).
2. Pre-season spawning escapement goals as established by Canada's spawning escapement plan were 156,000 Early Stuart, 296,000 Early Summer, 3,471,000 Summer and 134,000 Birkenhead sockeye. In addition, Management Adjustments (MAs) of 72,000 Early Stuart and 118,000 Early Summer fish were added to the spawning escapement targets to increase the likelihood of achieving the targets. The MAs were based on relationships between river conditions (discharge and temperature) as they relate to historic differences between lower river and upriver escapement estimates.
3. For Late-run sockeye, the Panel assumed a continuation of the early upstream migration behaviour and associated high mortality that has occurred since 1996. Given pre-season assumptions about marine timing and recent delay behaviour, the median upstream migration date for Late-run sockeye was expected to occur during the third week of August. Based on this upstream timing and the 50p abundance forecast the Panel adopted an allowable exploitation rate of 20%.
4. The projected Total Allowable Catch of Fraser River sockeye salmon was 5,394,000 sockeye, of which 16.5% were allocated to the United States (U.S.).
5. Pre-season expectations for Fraser River pink salmon were for an abundance of 17,535,000 fish, a Johnstone Strait diversion rate of 40% and an Area 20 50% migration date of August 25. With a spawning escapement target of 6,000,000 fish the TAC was 11,525,000 pink salmon, of which 25.7% were allocated to the U.S.
6. Pre-season modeling indicated it was unlikely the Total Allowable Catches (TACs) of Summer-run sockeye and Fraser pink salmon could be harvested, due to constraints required to achieve the escapement targets for co-migrating Early Summer and Late-run sockeye stocks.
7. The Panel adopted a management plan and fishery regime before the fishing season, including the "Principles and Constraints", "Guidelines to Address Late Run Concerns" and "2009 Regulations".

In-season Management Considerations

8. The total sockeye return was only 13% of the median forecast abundance, the lowest return on the 2009 cycle since records began in the late 1800s and the lowest on any cycle since 1947. In particular, the stocks that were expected to contribute the most to abundance and catch, Chilko and Quesnel,

returned at only 6% of the median forecast. As a result, there were no sockeye-directed commercial fisheries in either Canada or the U.S., and First Nations sockeye fisheries were severely constrained.

9. The return of Fraser pink salmon exceeded the median forecast and provided opportunities for pink-directed fisheries in both countries. Sockeye by-catch in these fisheries was minimized by waiting until most sockeye had cleared fishing areas and by implementing regulations that stipulated non-retention of sockeye.

10. River temperatures were warmer than average throughout the season, but particularly during late July and early August when temperatures exceeded 19°C for almost two weeks, peaking at 21°C on August 3.

Run Size, Catch and Escapement

11. Returns of adult Fraser sockeye totalled 1,505,000 fish, only 21% of the brood year abundance of 7,077,000 fish in 2005. Divided into management groups, adult returns totalled 85,000 Early Stuart, 197,000 Early Summer, 652,000 Summer, 72,000 Birkenhead and 452,000 Late-run sockeye. Returns of all management groups were poor, but Summer-run stocks were particularly affected. The smolt-to-adult survival rate of Chilko sockeye was only 0.3%, well below the previously observed record low of 1.2% in 2007.

12. As a consequence of the extremely poor sockeye return, Canada established a formal "Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River", otherwise known as the Cohen Commission (www.cohencommission.ca), and the PSC organized a workshop where reasons for the decline were examined by fisheries experts.

13. Catches of Fraser River sockeye salmon in all fisheries totalled 124,000 fish, including 74,000 fish caught by Canada, 18,000 fish by the U.S. and 32,000 fish by test fisheries. Almost all of the Canadian catch occurred in First Nations fisheries. In Washington, Treaty Indian fishers caught 4,300 sockeye (deemed Ceremonial and Subsistence catch) as by-catch in pink-directed fisheries. Fisheries in Alaska harvested 14,000 sockeye. The overall harvest rate was 8% of the run, which in a historical context was the lowest on record.

14. DFO's near-final estimates of spawning escapements to streams in the Fraser River watershed totalled 1,056,000 adult sockeye. This was only 32% of the brood year escapement of 3,311,000 adults but similar to cycle line escapements in the 1969-1977 period. By management group and for this cycle line, spawning escapements in 2009 were the lowest to the Early Stuart system since 1965, lowest Early Summer escapement since 1997, lowest Summer-run escapement since 1949, similar to the brood year for Birkenhead sockeye and second largest Late-run escapement on record. There were 514,000 effective female spawners in the Fraser watershed, representing an overall spawning success of 96%.

15. The in-season run-size estimate for Fraser pink salmon was 19,500,000 fish, 11% larger than the median forecast and the 4th largest since at least 1959. Catches totalled 4,495,000 fish, with 1,715,000 caught by Canada, 2,760,000 by the U.S. and 21,000 in test fisheries. This catch represents an exploitation rate of 23% which is, both in numerical and percentage terms, the largest since 1997. Pink spawner abundance is not directly estimated, so a spawning escapement of 15,005,000 pinks was estimated by subtracting the total catch from the in-season run-size estimate.

16. The annual diversion rate through Johnstone Strait was 47% for Fraser sockeye and 37% for Fraser pink salmon.

Achievement of Objectives

17. In order of descending priority, the goals of the Panel are to achieve the targets for spawning escapement, international sharing of the TAC and domestic catch allocation.

18. In-season management decisions are based on targets for spawning escapement, which are represented in-season by potential spawning escapement targets (i.e., spawning escapement targets plus MAs). In-season estimates of potential escapement (i.e., Mission escapement minus First Nations and recreational catches above Mission) approached or were higher than the targets for Early Stuart (11% under), Early Summer (1% over), Summer (10% under), Birkenhead (40% over) and Late-run (9% over) sockeye. These results show that the Panel responded quickly to in-season indications of low sockeye abundance by maintaining complete closures on all sockeye-directed fisheries under Panel management.

19. Spawning ground estimates of spawning abundance were 176,000 fish or 14% less than the post-season target. Spawner abundances were well below the targets for Early Stuart (47% under) and Early Summer (48% under) management groups, and close to the targets for Summer (8% under), Birkenhead (9% over) and Late-run (4% under) groups. For the earlier groups this result is largely due to the magnitude of the observed differences between in-season and post-season escapement estimates (i.e., % DBEs) – given the observed run sizes and %DBEs, the spawning escapement targets could not be achieved even in the absence of any fishery catch.

20. The exploitation rate for Late-run sockeye (including the Cultus) was only 4%, well below the 20% limit for this group. Late-run sockeye are the index group used to estimate the exploitation rate on Cultus sockeye.

21. Based on the TAC calculation method set out in Annex IV, Chapter 4 of the Pacific Salmon Treaty and February 15, 2008 Commission Guidance the Fraser sockeye TAC was zero and thus the U.S. catch exceeded their share of the TAC. In this calculation, the allowable catch is fixed on the date that Panel control of the last U.S. Panel Area was relinquished (October 3 in 2009), while catches are the post-season accounted totals. The small overage in the U.S. (Washington) of 4,300 sockeye was as a result of catches in pink-directed Treaty Indian fisheries.

22. There was no commercial allocation and no commercial catch of sockeye salmon in Canada, and thus no impact of Canadian commercial fisheries on domestic allocations.

23. Because catches of Fraser pink salmon were constrained by conservation measures necessary to protect Late-run sockeye, the spawning escapement target for Fraser pink salmon was exceeded by 9,005,000 fish. The U.S. catch was 704,000 fish less and the Canadian catch 8,300,000 fish less than their respective shares.

24. By-catches of non-Fraser sockeye and pink salmon in commercial net fisheries regulated by the Fraser River Panel totalled 0 sockeye and 947,000 pink salmon in 2009. Catches of other Fraser and non-Fraser salmon species included 980 chinook, 4,900 coho, 81 chum and no steelhead.

Allocation Status

25. The U.S. owes a payback of 4,300 Fraser sockeye to Canada in future years. There are no paybacks due for Fraser River pink salmon.

B. 2009 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Introduction

Fisheries in 2009 were conducted according to Annex IV of the Pacific Salmon Treaty. The arrangements contained in Annex IV include those initially agreed to between Canada and the United States in June, 1999 as well as additional agreements reached by the Commission and/or Panels since that time (e.g. Transboundary, chinook, coho and chum arrangements). The conservation-based approach commits the two Parties to abundance-based management for all stocks covered by the Treaty.

Catches reported below provide the best information available to date, and may change once all catch information for 2009 has been reviewed. The catches are based on in-season estimates (hailed statistics), on-grounds counts by Fisheries and Oceans Canada management staff and independent observers, logbooks, dockside tallies, landing slips (First Nation fisheries), fish slip data (commercial troll and net), and creel surveys, logbooks and observers (sport and commercial).

Annex fisheries are reported in the order of the Chapters of Annex IV. Comments begin with expectations and management objectives, followed by catch results by species, and where available and appropriate, escapements. The expectations, management objectives, catches and escapements are only for those stocks and fisheries covered by the Pacific Salmon Treaty (PST); domestic catch allocations have been excluded. Appendix 1 summarizes 1995-2008 catches in Canadian fisheries that have at some time been under limits imposed by the Pacific Salmon Treaty.

Transboundary Rivers

Stikine River

Canada developed a fishing plan for Stikine River salmon fisheries based on the catch sharing and management arrangements outlined in Annex IV, Chapter 1, Paragraph 3 of the Pacific Salmon Treaty (PST), including the new arrangements agreed to on 17 January, 2008 for the 2009 to 2018 period. Accordingly, the 2009 management plan was designed to meet agreed escapement targets and the following harvest objectives: to harvest 50% of the total allowable catch (TAC) of Stikine River sockeye salmon in existing fisheries; to allow additional harvesting opportunities in terminal areas for enhanced sockeye that were surplus to spawning requirements; to harvest up to 5,000 coho salmon in a directed coho fishery; and, to harvest approximately 5,800 to 7,500 large chinook salmon in a targeted fishery, based on the pre-season forecast, recognising this number could change once in-season run projections became available. The Canadian percentage of the chinook Allowable Catch (AC) fluctuates based on the terminal run size providing higher catch shares when abundance is low and lower catch shares in years of higher abundance.

The 2009 season opened on May 3rd, statistical week 19 (SW19), and ended September 10th (SW37). Commercial gear consisted of up to two, 135 metre (443 ft) gillnets per fisher. The maximum mesh size allowed was 204 mm (8") through June 20th after which time the maximum mesh size was restricted to 150 mm (6"). Only one of the two nets was permitted to be deployed as a drift net.

The lower Stikine commercial fishing grounds covered the area from the international border upstream to near the confluence of the Porcupine and Stikine rivers and also included the lower 10 km (6 mi.) of the Iskut River. The fishing area was extended upstream approximately 19 km (12 mi.) to the mouth of the Flood River during SW 29&30 in an attempt to increase the exploitation of sockeye salmon bound for

Tahltan Lake and the Tuya River. The weak chinook return did not warrant a fishing ground extension in 2009. (Fishing ground extensions result in a slightly higher exploitation rate.)

In the upper Stikine commercial fishery, which is located upstream from the Chutine River, fishing periods generally mirrored those in the lower Stikine commercial fishery lagged by one week. Fishers were permitted two nets. Effort was low throughout the season, but slightly higher than the 2008 effort. Again in 2009, the commercial fishing area was extended upstream to the mouth of the Tuya River. This action was taken in order to provide for a terminal test fishing opportunity on Tuya River bound sockeye, specifically at sites located upstream of the Tahltan River. The Tuya run, which consists entirely of sockeye produced from the Canada-US Stikine enhancement program, has no spawning escapement requirement since these fish cannot return to Tuya Lake due to several velocity barriers located in the lower reaches of the Tuya River. Tuya sockeye are released into Tuya Lake as young of the year juveniles.

The First Nation fishery located near the community of Telegraph Creek, B.C. was active from late May to mid August. There were no time or gear restrictions imposed on this fishery.

Most of the chinook sport fishing activity in the Stikine River watershed occurs in the lower reaches and at the mouth of the Tahltan River. Additional activity occurs less intensively in the Iskut River and other areas within the Stikine River drainage. Sport fishing activity commenced in late June and peaked in mid July. Fishing effort and catch was relatively low.

Chinook salmon

The pre-season forecast of Stikine chinook salmon, as provided by the Canada/U.S. Technical Committee for the Transboundary Rivers (TCTR), was for a below average terminal run size of 32,000 large chinook salmon, i.e. fish with a mid-eye to fork length >659mm (~26") or a fork length of >734mm (~29"). For comparison, the previous 7-year (2002-2008) average terminal run size was approximately 57,300 large chinook salmon.

The total combined gillnet catch of chinook salmon in the First Nation and commercial fisheries included 2,281 large chinook and 714 jacks compared to 1999-2008 averages of 6,788 large chinook and 1,233 jacks. The 2009 sport fishery yielded a total catch of 20 large chinook. For the first time in the history of the directed Stikine chinook fishery, fishers were requested to release live chinook caught after SW26 during the directed sockeye fishery. Totals of 339 large chinook and 154 jacks were voluntarily released. To account for mortality associated with the release of these fish, a mortality rate of 50% (based on post-release mortality studies in the Skeena River with steelhead) was used to provide preliminary estimates; the resulting estimated catch and release mortalities of 170 large, and 77 jack chinook are included in the total catch records.

In-season management was influenced significantly by run size projections derived from the Stikine Chinook Management Model (SCMM), a joint Canada-U.S. mark-recapture program, and other stock assessment tools such as the relationship between the commercial fishery CPUE and run size from 2005-2008. Harvest rate assessments by week were also used concurrently with the above-mentioned in-season run size estimation techniques. In-season estimates based on the average of the mark-capture and model estimates were calculated post SW22. Post SW24, the linear regression between commercial CPUE and run size and harvest rate estimates were incorporated with the SCMM and mark-recapture estimates. In-season terminal run size projections ranged from 25,500 fish in SW23 to 19,900 fish in SW28, the final in-season estimate. According to the in-season projections, the TAC for Canada ranged from approximately 5,500 to 2,300 (base level catch only) large chinook salmon. Unfortunately, in retrospect, the in-season projections over-estimated the run size according to the preliminary post-season estimate of run size as described below.

To honour Annex IV, Chapter 1, Paragraph 3(a)(3)(vii) which identifies the will of both Parties to spread the chinook harvest over the season, the duration of weekly fishery openings was based on weekly guideline harvests developed from the current in-season run size projection (or from the pre-season forecast before in-season projections were available) apportioned by historical run timing data. Overall, catches were below the weekly guideline harvest for the first four weeks of the fishery when the run size estimates were based on the preseason forecast. When the in-season run size projections started to decrease post SW22, the fifth week of the fishery, the weekly catches were close to, or exceeded, the guideline harvests. Fishing time was drastically reduced in reaction to the decreasing estimates of abundance in order to deliver fish to the spawning grounds. For example, the fishing time in SW24 was for a 12 hour period; no fishing was permitted the following week, when on average, the run strength is usually peaking. The first week of the targeted sockeye fishery, which commenced in SW26, was held at two days and a maximum mesh size restriction of 150 mm (~6") was imposed; these actions were aimed at protecting what had become a weak run of large chinook salmon. In addition, the normal Sunday noon start day was delayed to Tuesday noon in SW27 with the objective of providing additional time for the latter part of the chinook return to clear the commercial fishing grounds.

The preliminary post-season estimate of the terminal run is 15,000 large chinook salmon, including an in river run size based on mark-recapture data of 13,419 large chinook and a total U.S. catch estimate of 1,581 large chinook. Accounting for the total Canadian catch of 2,333 large chinook salmon (includes commercial, First Nation, sport and test catches and an estimate of release mortality), the total system-wide spawning escapement is estimated to be approximately 11,086 large chinook salmon. This escapement estimate is 69% below the recent 10 year average of 34,800 large chinook and well below both the target S_{MSY} escapement goal of 17,400 large chinook salmon and the escapement goal range of 14,000 to 28,000 large chinook salmon. A run size of 15,000 large chinook translates into an Allowable Harvest of zero(0) fish and insufficient numbers of chinook to have any base level harvest in either Canada or the U.S.

The 2009 chinook salmon escapement enumerated at the Little Tahltan weir included 2,245 large fish and 99 jack chinook salmon. The escapement of large chinook salmon in the Little Tahltan River was 66% below the recent 10 year average of 6,578 fish and 32% below the point (S_{MSY}) estimate of 3,300 spawners; it was also below the escapement goal range of 2,700-5,300 large chinook. The Little Tahltan River escapement of large chinook represented approximately 20% of the estimated total Stikine River escapement compared to an average contribution of approximately 18% (1999-2008).

Escapement counts in Verrett Creek (a tributary to the Iskut River) were also weak, but better than the 2008 return, as reported by the carcass pitch crew stationed at the creek from 05-09 August. A weak chinook salmon return to Shakes Creek (near Telegraph Creek) was reported by residents living at the creek mouth.

At this time, Stikine River chinook run timing to the lower Stikine commercial fishing cannot be reasonably assessed due to the paucity of fishing effort. However, timing at the Little Tahltan River weir was approximately 7-10 days late.

In addition to the mark-recapture study, the Little Tahltan weir project, and aerial surveys, genetic samples were collected on a weekly basis from chinook caught in the U.S. District 108 fishery and from weekly catches taken in the Canadian commercial fishery. These data will be used to assess run timing of Stikine stocks in District 108 and the lower Stikine commercial fishery.

Sockeye Salmon

The pre-season forecast for Stikine sockeye salmon, as provided by the TCTR, was for a terminal run size[1] of 274,400 fish including: 143,700 Tahltan Lake origin sockeye salmon (118,300 wild and 25,400 planted); 72,600 planted Tuya Lake sockeye; and 58,100 non-Tahltan wild sockeye salmon. This outlook constituted an above average run; for comparison, the previous 10-year average (1999-2008) terminal run size was approximately 179,600 fish.

Preliminary combined catches from the Canadian commercial and First Nation (food, social, ceremonial (FSC)) gillnet fisheries in the Stikine River totaled 45,904 sockeye in 2009, which was below the 1999-2008 average of 53,400 fish. The lower Stikine commercial fishery harvested 39,405 sockeye, while the upper Stikine commercial and First Nation fisheries harvested a total of 1,351 and 5,148 sockeye, respectively. The preliminary estimate of the total contribution of sockeye salmon from the Canada/U.S. Stikine sockeye enhancement (i.e. the fry-planting program) to the combined Canadian First Nation and commercial catches was 19,157 fish, or 42% of the catch.

In addition to these catches, 1,342 sockeye salmon were taken in the traditional stock assessment test fishery located near the international border. For the second year, a test fishery designed to target Tuya-bound sockeye operated in the mainstem Stikine River upstream of the mouth of the Tahltan River and succeeded in harvesting 2,145 sockeye salmon. An additional 214 sockeye was harvested and sampled in the Tuya River.

A total of 30,673 sockeye salmon was counted through the Tahltan Lake weir in 2009, 15% above the 1999-2008 average of 26,700 fish. The 2009 count was slightly above the escapement goal range of 18,000 to 30,000 fish and well above the point target of 24,000 sockeye salmon. An estimated 4,300 fish (14%) originated from the fry-planting program, which was below the 19% contribution observed in smolts leaving the lake in 2006, the principal smolt year contributing to the 2009 return. A total of 350 sockeye salmon was sacrificed at the weir for stock composition analysis. In addition, 3,011 sockeye salmon were collected for broodstock, resulting in a spawning escapement of 27,312 sockeye salmon in Tahltan Lake.

The bulk of Tahltan Lake sockeye entered the lake approximately 7-10 days earlier than normal; the earliest run timing since 1977. Early run timing of this stock was also apparent in the approach waters of the Stikine River and in the lower river; for example, run timing in the US District 106 fishery was at least one week earlier than normal. The near record low Stikine River flows registered during the sockeye migration period likely contributed to an accelerated in-river migration rate resulting in these fish transiting the in-river commercial fishing grounds earlier and faster than normal. This contributed to a lower than normal exploitation rate on Tahltan Lake sockeye salmon in 2009. In addition, some fishing opportunities on Tahltan Lake and Tuya River bound sockeye were missed due to early summer fishery closures designed to protect Stikine River chinook salmon. In an attempt to increase exploitation of the Tahltan and Tuya sockeye during the latter part of their in-river migration, the commercial fishery was extended upstream to the confluence of the Flood and Stikine rivers during SW29-30. The total estimated run size of 88,900 Tahltan Lake sockeye was approximately 38% below preseason expectation of 143,700 fish.

The spawning escapements for the non-Tahltan and the Tuya stock groups are calculated using stock ID, test fishery and in-river commercial catch and effort data. The test fishery, however, did not cover the full duration of the sockeye run. Therefore, the commercial fishery catch-per-unit of effort (CPUE), which operated over the full duration of the run, was used as the principal tool in assessing the spawning ground escapements of non-Tahltan Lake and the Tuya sockeye stock groupings. The test fishery data were used to complement and/or compare run size and escapement estimates generated from the commercial data. The test fishery data set, however, did require the calculation of proxy estimates of CPUE for weeks when the test fishery did not operate. These estimates were based on the historical linear relationship between commercial and test fishery CPUE from 1986-2004. All of the weekly data sets were significantly correlated. Calculated weekly test fishery CPUE values were generated for SW26&27 and SW35 in 2009. Based on the run reconstructions generated from the commercial fishery CPUE, the preliminary escapement estimates for 2009 are 23,300 non-Tahltan and 11,500 Tuya sockeye salmon. The non-Tahltan spawning escapement estimate was within the escapement goal range of 20,000 to 40,000 fish but was 13% below the recent 10 year average of 26,800 fish and below the point target of 30,000 fish. However, surveys of the spawning grounds suggested the non-Tahltan sockeye escapement was much worse than this. Aerial surveys of six index sites resulted in a total of only 113 fish being counted, 87% below average. The estimated escapement of 11,400 Tuya Lake sockeye was approximately 58% above the recent 10 year average of 7,200 fish. These fish do not contribute significantly to the natural production of Stikine River sockeye salmon due to migration barriers that obstruct entry to their nursery lake and potential spawning gravels.

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[1] Terminal run excludes U.S. interceptions that occur outside Districts 108 and 106.

Based on the in-river run reconstruction of the Tahltan Lake run expanded by run timing and stock ID data in the lower river and estimated harvests of Stikine sockeye in U.S. terminal gillnet fisheries, the preliminary post-season estimate of the terminal sockeye run size is approximately 179,100 fish. This estimate includes 88,900 Tahltan Lake sockeye, 42,100 Tuya Lake sockeye, and 48,100 sockeye of the non-Tahltan stock aggregate. A Stikine run size of this magnitude is close to the 1999-2008 average terminal run size of 179,600 sockeye salmon and is approximately 35% below the preseason forecast of 274,400 fish.

Similar to 2008, Canada relied more heavily on other in-season abundance estimates than those derived from the Stikine sockeye management model (SMM), which was updated and refined by the TCTR prior to the season. The SMM was used exclusively in SW27 by Canada and was used in concert with other in-river assessment estimates from SW28 through SW33. It was felt that the model was over-estimating the run size, particularly the Tahltan Lake component. As a result, most of the in-season run projections used in management of the Canadian fisheries were based on the average of the SMM and run reconstruction analyses or the average of the SMM model and an in-river regression model as the season progressed. The run size projections ranged from 235,500 fish in SW27 to 133,400 fish in SW31. The final in-season run size estimate was 160,500 fish, based on the run reconstruction approach, while the final estimate based solely on the SMM was 181,800 fish. The preliminary post-season estimate was 179,100 with a Canadian allowable harvest of 56,200 fish. The actual catch was 48,000 fish or 15% below the allowable harvest.

Coho Salmon

For the second consecutive year, several boats remained in the fishery to harvest coho salmon resulting in a total catch of 5,959 coho salmon. A total catch of 5,061 coho salmon was taken during the targeted coho fishery from SW35-39, well above the recent 10 year average catch of 405 fish.

The cumulative weekly CPUE index of 5.1 observed in the coho test fishery was 6% below the recent 10 year average cumulative CPUE of 5.4. Aerial surveys of four index spawning sites did not follow suit with a combined count of 2,700 fish, approximately 31% below the recent 10 year average of 3,900 fish.

Joint Sockeye Enhancement

Joint Canada/U.S. enhancement activities continued with approximately 4.5 million sockeye eggs collected at Tahltan Lake in the fall of 2009; this was below the target of 6.0 million. The failure to reach the egg take goal was due to the behaviour and distribution of the sockeye in the lake that resulted in fewer fish utilizing the principal spawning and brood collection sites. Another constraining factor was the egg-take protocol developed by the Enhancement Sub-committee of the TCTR which has been in place for a few years. The protocol requires the brood stock collection activities to occur by 25 September in order to provide for a natural spawning period which is free from the disruption caused by the egg take. Brood stock is typically collected every other day by seining mature adults from the main spawning ground in Tahltan Lake. The final egg take occurred on September 24th with these eggs being flown to the Snettisham hatchery on September 25th. In an attempt to increase the egg take numbers in 2009, the crew net-penned green, i.e. immature, fish which were caught simultaneously with the ripe fish. These fish were held until mature and the egg yield from the penned fish accounted for approximately 25% of the total egg take in 2009.

Approximately 1.4 million fry were out-planted into Tahltan Lake in late May and early June of 2009. The fry originated from the 2008 egg-take and were mass-marked in the hatchery with thermally induced otolith marks. The balance of 0.830 million fry originating from the 2008 Tahltan Lake egg take was released into Tuya Lake in mid June, 2009. This group also had a unique, thermally induced otolith mark. Green egg –to-released fry survival was 84.2% for the eggs designated for Tuya Lake and 58.2% for those designated for Tahltan Lake. A total of 548,000 fry destined for Tahltan Lake held at the Snettisham hatchery was destroyed due to an outbreak of IHNV.

Approximately 0.746 million sockeye salmon smolts were estimated to have emigrated from Tahltan Lake in 2009, well below the 1999-2008 average of approximately 1.44 million smolts and roughly 50% of the expected number for the 2009 season. The contribution of hatchery origin fish was approximately 0.287 million smolts representing approximately 38% of the emigration. Both wild and enhanced sockeye smolt survivals were well below average.

Although the Stikine enhancement program has been successful in producing significant numbers of sockeye salmon, the inability to harvest these fish in terminal areas continues to be a challenge. Returning adults from the Tuya Lake out-plants unsuccessfully attempt to ascend the impassable barriers in the lower reaches of the Tuya River until they either perish or back out of the system. Some of these drop outs end up in nets fished in the Telegraph Creek area raising concerns over poor quality, injured and battered up fish. Others stray[2] into Stikine River tributaries raising concerns over potential impacts on wild salmon stocks.

Various attempts have been made to date to address these concerns many of which were made possible by support from the Northern Fund. Fishing with gillnets and dip nets has occurred at various sites in the Tuya River with mixed results. To improve fish capture in the lower Tuya River, a fishway/trapping apparatus was designed and constructed in Vancouver during the spring of 2006 and transported to Whitehorse. However, full operation of the apparatus was cancelled because of a major rock slide at the Tuya River fishing site that occurred sometime in June 2006. The rockslide rendered the fishing site, which the fish trap was designed for, unusable due to changes in river hydrology and unsafe working conditions. In 2007, additional rock slide activity occurred in the lower reaches of the Tuya River. A steering committee, consisting of Canadian and U.S. engineers and other technical advisors, visited the site in August 2007 to re-assess the conditions and to consider other options. The committee decided to proceed the following year with plans to strategically blast the rock obstruction at the location of the 2006 rock slide to provide fish passage to a potentially favourable harvest site located approximately 800 metres (1/2 mi.) further upstream. In the late fall of 2008, a blasting crew succeeded in removing approximately 100 m^3 (~130 cubic yards) of rock from the blockage. A visual and test fish assessment conducted in late July 2009 at locations below and above the blast site indicated that the majority of the fish, including chinook salmon, succeeded in ascending the river to points above the rock slide site. The committee plans to contract an engineering firm to design a fish harvest structure for the new site. The firm will provide both design detail and cost estimates for the structure as well as the routing and costs of an access trail to the site. The initial road survey was conducted in May 2009, but a detailed onsite survey is still required to better assess road grade and ground type.

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[2] Straying of Tuya sockeye has been confirmed using radio telemetry and sampling for thermal marks. In a report completed in February 2006, funded by the Northern Fund, which investigated potential impacts and risks of the straying of enhanced Tuya sockeye salmon, the authors concluded that …"*given the results of the literature review and the data collected to date in the Stikine River, the probability of genetic risk of Tuya River blocked fish appears to be extremely low. However, it is prudent to suppose, that given a long enough period of time and a large enough number of fish, that some successful straying and interaction of Tuya River fall back fish could take place*".

For the second consecutive year, an experimental test fishery designed to target Tuya River sockeye at fishing sites located in the lower Grand Canyon of the Stikine River upstream from the mouth of the Tahltan River was conducted. The project design changed from its initial 2008 design in that the majority of nets were fished further upstream in the Stikine River and closer to the mouth of the Tuya River than what occurred in 2008. This change was prompted by the stock identification results from 2008 which indicated that less than 50% of the catch was Tuya River origin sockeye in 2008. *(note: the 2008 stock identification results will be re-analyzed to ascertain the validity of a specific otolith thermal mark from brood year 2004.)* The 2009 Tuya test fishery yielded a total catch of 2,145 sockeye and 37 chinook salmon over a nine day period from 22 to 30 July. The sockeye catch consisted of Tuya (71%), Tahltan (22%), and mainstem (7%) stocks/stock aggregates. The estimated catch of 1,520 Tuya sockeye translates into an estimated exploitation rate of approximately 12% on this stock. Most of the catch was distributed to elders of the Tahltan/Iskut First Nations, most of whom were residents of communities located within the Stikine River drainage

Taku River

As with the Stikine River, the fishing plan developed by Canada for the Taku River was based on the new arrangements in Annex IV, Chapter 1, Paragraph 3 of the PST in effect for 2009 through 2018. Accordingly, the plan addressed conservation requirements and contained the following harvest objectives: to harvest approximately 8,500 large chinook salmon in a directed chinook salmon fishery, adjusted as necessary according to in-season run projections; to harvest 20% of the TAC of Taku River sockeye salmon (adjusted as necessary according to projections of the number of enhanced sockeye), plus the projected wild sockeye escapement in excess of 1.6 times the spawning escapement goal; to harvest enhanced Taku River sockeye incidentally to wild sockeye salmon; and, to harvest 3,000 to 10,000 coho salmon in a directed coho fishery, depending on in-river run size projections, plus projected escapement in excess of the spawning escapement goal.

The 2009 commercial fishing season on the Taku River opened on Wednesday, April 29 (SW18) and ended on Friday, October 9 (SW41). However, little fishing activity occurred after Saturday, September 12 (SW37) due to market and transport conditions. Fishing area and gear restrictions were as per recent years with the exception of the allowable length of set gill nets which was liberalised from 30.5 metres (100 feet) to 36.6 metres (120 feet) to match the increase permitted for drift gill nets in 2008 in order to increase efficiency.

The Taku River commercial fishing grounds in Canada consist of the mainstem of the river from the international border upstream approximately 18 km (11 mi.), to a geological feature known locally as Yellow Bluff. Almost all fishing activity takes place in the lower half of this area, downstream of the Tulsequah River.

The First Nation fishery is primarily located in the lower Taku River in the same area as the commercial fishery as described above. However, small numbers of fish are also harvested on the lower Nakina River and at the outlet of Kuthai Lake. There were no time or gear restrictions imposed on this fishery in 2009.

Most of the chinook sport fishing activity in the Taku watershed occurs on the lower Nakina River. Additional sport fishing sites used less intensively exist on the Tatsatua River, the Sheslay River and other areas within the Taku River drainage. Effort and catches are poorly documented but are believed to be negligible for all species except chinook salmon and steelhead. This is due to the remote nature of the watershed and somewhat difficult access.

Chinook Salmon

The bilateral pre-season forecast was for a terminal run of 50,164 large chinook, approximately 7% above the previous 10-year average of 46,700 fish. At a run size of this magnitude and factoring in the new interim S_{MSY} escapement point goal of 25,500 large fish, the allowable catch (AC) was 18,264 large chinook, with 8,537 fish (47% of total) allocated to Canada and 9,727 fish (53% of total) allocated to the US. Adding the base level catches (BLC's) of 1,500 fish for Canada and 3,500 fish for the US meant that that total allowable catch (TAC) was 23,264 fish.

In-season projections of the terminal run size of large chinook salmon, allowable catch (AC), and escapement were made starting in SW21 (May 17-23). The estimates were based on the bilateral mark-recapture program, the estimated catch of Taku River chinook in U.S. fisheries, the catch in the Canadian in-river fishery, and historical run timing information. Run size projections ranged from 47,500 fish in SW21 to 36,000 fish in SW26 (June 21-27). The last projection made during the directed fishery indicated a terminal run size of approximately 37,400 large chinook, well below the preseason forecast. According to these estimates, the AC for Canada dropped from 8,357 fish at the start of the directed fishery to 5,123 fish just prior to its close. In order to honour Annex IV, Chapter 1, Paragraph 3(b)(3)(v) which identifies the need for both Parties to spread the chinook harvest over the season, the duration of weekly fishery openings were based on weekly guideline harvests developed initially from the preseason forecast and then from in-season run projections apportioned by historical run timing data. Catches were below weekly guidelines in six of the seven openings during the season. High water levels affected the ability to meet weekly targets in some weeks. As with the Stikine, in-season chinook run size projections over-estimated the run size according to the preliminary post-season estimate.

The total directed chinook fishery catch was 5,961 fish, 838 fish above the final in-season projection of the AC as noted above. Management emphasis switched to sockeye salmon in SW26 (June 21–27); at this point, the maximum permissible mesh size was reduced from 204 mm (8.0") to 140 mm (5.5") in order to conserve chinook salmon. Additional catches occurred in what constitutes the Canadian chinook base level fisheries: 798 large chinook were taken incidentally during the directed commercial sockeye gillnet fishery; 172 large chinook were harvested in the First Nation fishery; and an estimated 100 large chinook were taken in the recreational fishery. The total harvest in the base level fisheries amounted to 1,070 fish, which was 430 fish less than the base level allowance of 1,500 fish.

The preliminary post-season estimate of terminal run size is 33,915 large chinook, 32% below the pre-season forecast and also below in-season projections. A terminal run size of this magnitude is associated with an AC of 2,015 fish (allocated to Canada) plus base level catches (BLC) of 5,000 fish (1,500 Canada; 3,500 U.S). This equates to TACs of 3,515 fish for Canada and 3,500 fish for the U.S.; actual catches were 7,031 and 6,122 fish, respectively.

The total Canadian catch of 7,031 large chinook (including 6,759 commercial, 172 First Nation and 100 recreational) was 2.6 times the 1999-2008 average of 2,694 fish, (i.e. excluding test fisheries); however, it should be noted that only two other targeted chinook fisheries occurred during this period, in 2005 and 2006 with catches of 7,399 and 7,377 large chinook, respectively. The 2009 total harvest of small chinook was 1,183 fish (including 1,153 commercial and 30 First Nation), 3.3 times the 1999-2008 average of 347 fish.

The preliminary estimate of the spawning escapement of large chinook is approximately 20,800 fish. This is below the new interim point target of 25,500 large chinook but within the overall escapement range of 19,000 to 36,000 fish. The 2009 estimate is 45% below the 1999-2008 average spawning escapement of 37,586 large chinook (which is associated with a higher target). During aerial surveys of six index areas, a total of 4,189 large chinook was observed; this was 28% below the 1999-2008 average. Survey conditions were rated as normal.

Tissue samples were collected on a weekly basis from chinook salmon caught in the Canadian commercial fishery as part of the development of the genetic stock ID program identified in Annex IV, Chapter 1, Paragraph 3(b)(3)(vi); funding has not yet been secured to process these samples.

Sockeye Salmon

The Canadian pre-season run outlook for wild sockeye was 213,028 fish, approximately 9% below the previous 10-year average total run size of 233,500 fish. In addition, approximately 3,800 adult sockeye were expected to return from Tatsamenie Lake fry outplants associated with the Canada/U.S. joint Taku sockeye enhancement program; this was 30% below the average enhanced run size of 5,400 fish.

The Canadian sockeye catch was 11,057 fish, of which 10,951 were taken in the commercial fishery and 106 in the First Nation fishery. An additional 174 sockeye was taken in the coho test fishery. The commercial catch was 58% below the 1999-2008 average of 25,900 fish, and the lowest catch since 1982. The contribution of sockeye salmon from the bilateral enhancement program is estimated at 81 fish, (plus 6 in the test fishery) comprising less than 1% of the total Canadian catch.

Projections of the total wild sockeye run size, TAC, and total escapement were made frequently throughout the fishing season. The estimates were based on the bilateral mark-recapture program, the estimated catch of Taku River sockeye in U.S. fisheries, the catch in the Canadian in-river fishery, and historical run timing information. These estimates ranged from 174,800 in SW29 (July 12-18) to 125,900 in SW34 (August 16-22). The preliminary post-season estimate of run size is approximately 124,255 fish comprising 123,479 wild sockeye and 777 enhanced sockeye. The wild and enhanced run sizes were 42% and 80% below the preseason forecasts, respectively. Subtracting the escapement target of 75,000 from the wild run of 123,479 leaves a TAC of 48,479 wild fish. The Canadian allowable catch, based on a 20% harvest share (associated with an enhanced return of 1-5,000 fish), was 9,696 wild fish; the actual catch was 10,976 wild fish representing 22.6% of the TAC. Likewise, the U.S. allowable catch of wild fish, based on an 80% harvest share, was 38,783 fish; the actual catch was 40,924 wild fish representing 84.4% of the TAC.

The estimated spawning escapement of sockeye salmon in the Canadian section of the Taku River, was 71,840 fish which was below the point target of 75,000 but within the target range of 71,000 to 80,000 fish. The 2009 escapement is approximately 35% below the 1999-2008 average of 111,000 fish. Based on weir counts, escapements to the Kuthai, Little Trapper, and Tatsamenie lakes were 1,442, 5,552, 2,032 sockeye, respectively. The Kuthai Lake escapement was 9% below the primary brood year escapement and 65% below the 1999-2008 average; it was the third lowest count in the data time series which begins in 1992. The Little Trapper weir count, the third lowest since 1983 when the program started, was 58% below the primary brood year escapement and 56% below average. The Tatsamenie count was close to the primary brood year escapement, but was 77% below average and was the second lowest in data records dating back to 1985. The escapement target of 6,600 Tatsamenie sockeye salmon in 2009, established in order to achieve the egg-take goal of 4.0 million eggs, was not achieved. Although an exact count is not available, the escapement to King Salmon Lake was also believed to have been below average.

Coho Salmon

The total commercial catch of 5,649 coho salmon was 14% above the 1999-2008 average of 4,610 fish; the First Nation catch of 154 coho salmon was 57% below the average of 355 fish. The catch during the directed coho salmon fishery, i.e. after SW33, was 3,423 fish; this excludes the catch from the test fishery which took place from SW35-41 (August 23 – October 8) and landed 3,963 fish. Based on bilateral mark-recapture data, the preliminary estimate of the run into the Canadian section of the drainage is 113,716 fish, 8% above the preseason forecast of 104,900 fish which was predicated upon average exploitation rates in U.S. fisheries. According to the PST harvest arrangements for Taku coho salmon, at a run size of this magnitude, Canadian fishers were entitled to harvest up to 10,000 coho salmon in a directed fishery starting in SW34, plus projected surplus escapement. The preliminary post-season spawning escapement estimate is 103,950 fish; this is 68,950 above the top end of the interim escapement goal range of 27,500 to 35,000 fish. Compared to the previous 10-year average spawning escapement of 109,568 coho salmon, the 2009 escapement was 5% below average.

Joint Sockeye Enhancement

Joint Canada/US enhancement activities continued in 2009. Approximately 79% of the eggs collected in 2008 from Tatsamenie Lake survived to the fry stage at the Snettisham Hatchery in Alaska; one incubator containing approximately 260,000 fry was lost to IHNV. In late May and early June 2009, approximately 3.8 million sockeye fry were outplanted into Tatsamenie Lake. In addition, as part of an onshore extended rearing trial, 116,000 fry which had been reared to 0.4 grams in the hatchery were released into two onshore rearing tanks located near the north end of the lake. These fish were released in July, ahead of schedule due to concerns regarding IHNV. They were approximately 2.5 grams in weight at release, and appeared to out-migrate almost immediately, rather than remaining in the lake to rear.

It is estimated that, in addition to the extended-rearing pre-smolts, approximately 418,000 sockeye smolts out-migrated from Tatsamenie Lake in the spring and summer of 2009; this was about 18% above average; however smolt size was slightly below average. The contribution of enhanced smolt to this out-migration was estimated to be 24% based on preliminary thermal mark analysis.

As part of the feasibility study associated with removal of a migration barrier near the outlet of Trapper Lake, eggs were again collected in 2009, from sockeye spawning a short distance downstream. It had been proposed that a total of 1.0 million eggs be taken, with 0.8 million of these to be incubated at Snettisham Hatchery and the remainder placed in Tunjony Creek, a tributary to Trapper Lake. However due the low adult sockeye return to Little Trapper Lake in 2009, only 140,000 eggs were collected, all of which were planted into Tunjony Creek.

In September and October 2009, an estimated 1.2 million viable eggs were delivered from Tatsamenie Lake to the Snettisham Hatchery for incubation and thermal marking. This was below the target of 4.0 million due to the low adult return and a protocol which limits broodstock removals to ≤30% of the escapement.

Additional enhancement-related activities undertaken in 2009 included evaluation of Trapper Lake outplants, as well as disease screening of King Salmon fish populations for evaluation of sockeye enhancement potential.

Alsek River

Although catch sharing of Alsek salmon stocks between Canada and the U.S. has not been specified, Annex IV of the PST does call for co-operative development of abundance-based management regimes for Alsek chinook, sockeye and coho stocks. Instead of managing to system-wide goals, which for the most part have been as yet unverifiable, the TCTR has established index goals for the Klukshu River stocks. Historically, the principal escapement-monitoring tool for chinook, sockeye and coho salmon stocks in the Alsek drainage has been the Klukshu River weir, operated by Fisheries and Oceans Canada in co-operation with the Champagne-Aishihik First Nation. The Klukshu River is a tributary to the Tatshenshini River, which is the major salmon producing river system of the Alsek drainage.

Based on joint stock-recruitment analyses conducted on Klukshu chinook and sockeye salmon, Canadian and U.S. managers agreed to a minimum escapement goal of 1,100 Klukshu Chinook salmon and an escapement goal range of 7,500 to 15,000 for Klukshu sockeye salmon for the 2009 season. An escapement goal for Klukshu coho salmon has not yet been developed.

The 2009 season was marked by an average run of chinook salmon and a well below average sockeye salmon run; it was the third year in the last five in which the Klukshu escapement goal for sockeye has not been met. In 2009, the estimated catches in the First Nation fishery included 105 chinook, 715 sockeye, and 3 coho salmon compared to recent 10 year average recorded catches of 83 chinook, 1,271 sockeye, and 11 coho salmon. As a result of the poor returns of sockeye salmon, discussions with DFO and the Champagne and Aishihik First Nations (CAFN) resulted in a two week sockeye closure commencing September 24th in the Klukshu River.

Preliminary catch estimates for the Alsek/Tatshenshini River recreational fishery were well below average for chinook salmon, with an estimated 20 fish retained. Only two sockeye salmon were harvested and no catches were recorded for coho salmon. These represented 22% of average catch for chinook and 5% of the average sockeye catch. On September 23rd, the daily and possession limits for sockeye salmon were reduced to zero for the remainder of the year due to the run projection which fell below the lower end of the escapement goal.

The Klukshu weir count of 1,571 chinook salmon was 7% above the previous 10-year (1999-2008) average of 1,467 fish. The estimated spawning escapement of 1,518 chinook salmon was above the minimum escapement goal of 1,100 Klukshu chinook salmon. Aerial survey counts of chinook salmon, typically conducted by ADF&G for the Takhanne and Blanchard rivers and Goat Creek, were not conducted in 2009.

The weir count and spawning escapement of Klukshu River sockeye salmon were 5,712 and 5,509 fish, respectively. The early-run weir count of 1,247 sockeye was 52% of the previous 10-year average of 2,398 fish. The late-run count of 4,465 fish was 44% of the previous 10-year average of 10,119 sockeye salmon. The overall spawning escapement of 5,509 sockeye salmon in the Klukshu River was below the lower end of the escapement goal range (7,500 to 15,000 sockeye). The Klukshu weir was removed October 01, approximately 10 days earlier than previous years due to budget constraints. Historically, approximately 94% of the sockeye weir count occurs by October 01; the 2009 count includes 200 sockeye which were observed downstream of the weir site on October 02. In the neighbouring tributary of Village Creek, malfunctions with the electronic counter prevented an accurate count on this system. An aerial survey of the headwater lake, Nesketaheen Lake, indicated that approximately 4,000 to 5,000 spawners had made it to the lake (above average).

The Klukshu weir count of 424 coho salmon was 15% of the previous 10-year average 2,815 fish. However, this should be considered to be only a partial count since the weir was removed just as the coho numbers were starting to increase; on average, less than 20-25% of the total weir count is accounted for by October 1.

As in recent years, the well below average return of sockeye salmon to the Klukshu River was unexpected. Based on the primary brood year escapement of 13,700 which fell in the upper end of the goal range, it was expected that the 2009 return would be above average; this was not the case. Near pristine habitat and minimal exploitation of the Klukshu stock would suggest that poor marine survivals may have played a role. However, the numbers of sockeye observed in aerial surveys of Nesketaheen Lake and some other Alsek tributaries appeared to be average to above average. It may be prudent to assume that the same marine conditions would have been faced by these other stocks, suggesting that poor marine survivals may not have been the only factor contributing to the poor run of Klukshu sockeye.

Northern British Columbia Pink Salmon

Areas 3-1 to 3-4 Pink Net Catch

For the year 2009, Canada was to manage the 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 39.05 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 28.30 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 702,933 pinks of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be average to above average for both Area 3 and Area 4, based on brood year return strength. Returns to Area 3 streams were below expectations while as anticipated for Area 4 streams in 2009. The 2009 Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 404,460 and a preliminary estimate of the Alaska stock component of this catch is estimated to be 271,910, or 0.96 % of the AAH, well below the allotted 2.49 % of the AAH of 702,933 pieces.

Area 1 Pink Troll Catch

For the year 2009, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 39.05 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 28.30 million pinks. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 581,601 pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery in Area 1 was open in the northern portion of the Area from July 1 to September 30, with the directed pink fishery along the A-B line strip being open for that time period. Pink salmon directed effort was very minimal and the fishery harvested a total of 60,402 pink salmon, with an estimated 50,839, or 84.2 %, being of Alaskan origin. This equates to 0.18 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement for 2.57 percent of the Alaskan Districts 101, 102 and 103 pink salmon AAH.

Chinook Salmon AABM Fisheries

The pre-season abundance index for North Coast B.C. troll and Q.C.I. Sport fisheries in 2009 was 1.10, which allowed a total catch of 143,000 chinook salmon in these fisheries. Preliminary estimates indicate a total catch of 109,470 chinook salmon; 75,470 caught in commercial troll fisheries and 34,000 caught in sport fisheries.

The North Coast B.C. troll fishery was opened for chinook fishing from June 15 to August 3 and from August 22 to September 30, 2009. The entire 2009 NBC Troll fishery was conducted under a system of individual transferable quotas. The size limit was 67 cm. Barbless hooks and revival boxes were mandatory in the troll fishery. No troll test fisheries were conducted in the North Coast of B.C. in 2009.

Sport fishing was open with a daily limit of 2 chinook and a possession limit of 4 chinook. An estimated 34,000 chinook were caught in the Queen Charlotte Islands sport fishery. A minimum size limit of 45 cm was in effect and barbless hooks were mandatory in the sport fishery.

Chinook ISBM Fisheries

Fisheries included in this category are commercial net fisheries throughout north and central BC, marine sport fisheries along the mainland coast and freshwater sport, and Native fisheries in both marine and freshwater areas. Under the PST, obligations in these fisheries are for a general harvest rate reduction (estimated in aggregate across fisheries) for ocean mixed-stock fisheries and for stock-specific objectives (i.e., achieving the escapement goal) in terminal areas.

North Coast commercial gillnet catches totalled 4,628 chinook from Areas 3 to 6 (from fish slip catch data). Chinook catch in Areas 3 and 4 were 1,541 and 3,083 chinook respectively. Only 4 chinook were reported caught with gillnets from Area 6. No chinook were reported caught in Area 5. These preliminary estimates of gillnet catches exclude chinook less than 5 pounds (graded as jacks and small red fleshed chinook) not normally included for PSC accounting. Small chinook typically make up less than 5% of commercial gillnet catches. In addition, a total of 1,189 large chinook and 133 jacks were caught in the Tyee Test fishery on the Skeena River.

Johnstone Strait commercial fisheries including Area B seine and Area D gillnet was managed by South Coast and corresponding catches are reported in the South Coast section of this report.

Tidal sport catch from lodges operating in the Rivers Inlet, Hakai Pass and Bella Bella areas were estimated using log books. Approximately 3,239 chinook were retained at lodges in these areas in 2009. Detailed surveys of non-lodge (independent) anglers were not conducted in 2009 but catches by independent anglers are generally less that the lodge component. Creel surveys used to estimate catches of chinook in Rivers Inlet by independent anglers averaged 334 chinook between 2003 and 2005.

Tidal sport catches near the mainland coast of Northern BC were estimated at 9,177 by a creel survey conducted in Areas 3 and 4 in 2009. The 2009 catches in the mainland sport fishery in Areas 5 and 6 were unknown. No freshwater creel surveys were conducted in the North Coast in 2009. The sport catch from the Skeena River fishery (downstream of Terrace, B.C.) included 6280 chinook in 2003. Although catches were not measured in 2009, effort appears to be similar to 2003.

Catches by First Nations in the North Coast exceeded 13,083 chinook. Nisga'a and Gitanyow catches from the Nass River were 5,531 chinook. Haida catches on the Queen Charlotte Islands were estimated at 1,200 chinook. Only a portion of catches from Native fisheries in the Skeena have been reported but current estimates exceed 6,352 chinook. Chinook catch by First Nations on the Skeena appear to be slightly less than 2008 estimates.

Catches by First Nations in the tidal portion of the Central Coast were reported as 248 chinook while the non-tidal catch of terminal Atnarko River chinook was 3,763 chinook (jacks excluded).

Overview of Northern BC Chinook Stock Status

Since assessments of the ISBM fisheries are relative to the escapements achieved in the chinook indicator stocks, a brief overview of the 2009 returns is provided. Northern BC terminal runs were similar to 2007 and 2008. Preliminary estimates of Nass River escapements increased to 28,710. Skeena River chinook escapements increased slightly with recent estimates at approximately 38,014.

Fraser River Sockeye

Objectives and Overview

The 2009 sockeye run-size forecast at the 50% probability level of abundance was approximately 10.5 million. A majority of the total return (~82%) was expected to be Summer-run sockeye. Pre-season planning indicated harvest opportunities would be available for all fishery sectors if the pre-season run size forecasts materialized.

Pre-season planning incorporated provisions to meet escapement objectives and meet conservation objectives for stocks of concern while considering international and domestic objectives. Although there was significant effort put into developing a pre-season plan for anticipated fisheries there was no bilaterally agreed upon pre-season plan in 2009. Pre-season modelling indicated that achieving each county's share would be difficult considering pre-season model inputs (aggregate run sizes, timing overlaps and diversion rate) as well as escapement and conservation objectives. It was decided that more discussion was needed to occur bilaterally in order to agree on a final plan prior to the initiation of fisheries. Although there was no bilaterally agreed to plan, pre-season planning models included the following assumptions and guiding principles in no particular order:

- In March 1985, the United States and Canada agreed to co-operate in the management, research and enhancement of Pacific salmon stocks of mutual concern by ratifying the Pacific Salmon Treaty (PST). The U.S. share of the annual Fraser River sockeye salmon total allowable catch (TAC), harvested in the waters of Washington State was set at 16.5% as per the PST Annex IV Chapter IV agreement. There were no catch overages of Fraser River sockeye from previous years to address in 2009.

- For computing TAC by stock management groupings, the Aboriginal Fishery Exemption (AFE), shall be allocated to management groups as follows: The Early Stuart sockeye exemption shall be up to 20% of the Fraser River AFE, and the remaining balance of the latter exemption shall be based on the average proportional distribution for the most recent three cycles and modified annually as required to address concerns for Fraser River sockeye stocks and other species and as otherwise agreed by the Fraser River Panel.

- To the extent practicable, the Fraser River Panel (FRP) shall manage the United States fishery to spread the United States harvest proportionately to the TACs across all Fraser River sockeye stock management groupings (Early Stuart, Early Summer, Mid-Summer, and Late Run).

- For 2009 pre-season planning purposes, the FRP agreed to use the 75% probability level of abundance forecast for Early Stuart sockeye and the 50% probability level of abundance forecasts for the other run timings groups;

- That although the capability to assess in-season run size and migration timing would be good for Summer-run and Late-run sockeye, an in-season run size estimate for Cultus Lake sockeye would not be possible due to low abundance relative to co-migrating sockeye stocks. As a result the harvest impacts on Cultus Lake sockeye would be assessed using other Late-run stocks (excluding Birkenhead and Harrison) as a proxy;

- Birkenhead sockeye do not endure the same migratory conditions as other Late-run sockeye and will therefore be managed to the same ER as the Summer-run with no MA;
- Canada's escapement plan implements escapement requirements that vary with run size for the Early Stuart, Early Summer, and Summer run aggregates, while a 20% minimum exploitation rate limit for Late-run and Cultus sockeye would be implemented; and
- Under 2009 harvest rules for Late-run sockeye, the Total Allowable Catch (TAC) would be incidentally accessed while harvesting other sockeye run timing groups that had surplus returns (e.g. Summer-run TAC).

In past years, Fraser River sockeye spawning targets were based upon a Rebuilding Strategy which was developed in 1987. Due to some shortcomings in this approach, in 2005 the Department adopted a new escapement strategy for Fraser River sockeye known as the Fraser River Sockeye Spawning Initiative (FRSSI). This annual escapement strategy seeks a balance between long-term objectives and short-term practical considerations, and combines technical analyses with qualitative judgment. The annual exploitation rate targets are adjusted based on expected run sizes and environmental conditions. This escapement strategy has been modified as a result of a series of yearly consultation workshops beginning in the spring of 2006 which continued through 2009. The Department is continuing to seek feedback on this approach and plans are in the works to review model changes and updates via the Pacific Advice Review Committee process (PSARC) as soon as May 2010.

Late-run sockeye have historically delayed in the Strait of Georgia for 4-8 weeks prior to entering the Fraser River. Beginning in 1996, this behaviour has changed to one where there has been a shorter delay and occasionally immediate river entry. Concerns for Late-run early entry and the associated elevated rates of en-route and pre-spawn mortality continue. Management objectives and actions implemented in 2009 placed priority on conserving Fraser River Late-run sockeye (which include Cultus Lake sockeye) by permitting a low exploitation rate (20%) on Late-run stocks while providing anticipated opportunities to harvest expected surplus Summer-run sockeye.

Conservation concerns for other sockeye stocks and species may impact sockeye fisheries in 2009. The following are a list of relevant conservation concerns where specific action may be taken in fisheries to meet conservation objectives: Early Stuart sockeye, Cultus Lake sockeye, Late-run sockeye, Nimpkish sockeye, Sakinaw Lake sockeye, Interior Fraser River coho and Interior Fraser River Steelhead.

Pre-Season Assessment

In addition to Canada's escapement plan, estimates of run size, diversion rate, run timing and assumptions about in-season environmental conditions are key inputs required to seed the pre-season Harvest Planning Model prior to observing in-season information. The main objective of the model is to identify potential fishing opportunities while attempting to meet conservation, international and domestic objectives.

Run Size Forecasts Used for Planning

Fraser sockeye forecasts are uncertain. Sockeye forecast tables express this uncertainty by providing probability distributions of the forecast ranging between the 10% probability level of abundance and the

90% probability level of abundance. Forecast uncertainty for sockeye has been compounded in recent years due to low and variable observations of marine survival (smolt-to-adult) relative to average. Chilko smolt-to-adult survival rates are used as a proxy for marine survival in Fraser sockeye. This measurement includes a freshwater downstream migration component encompassing the movement of smolts downstream from a counting fence at Chilko Lake to the mouth of the Fraser River. In the 2008 return (2004 brood year) marine survival was estimated to be ~1.8% which is the lowest observation since 1952. Trends in average marine survival are the following: 1948-2008 ~9%, 1990-2008 ~6%. The smolt-to-adult survival in which would be required to produce the 2009 pre-season forecast for Chilko was well below the historical average and below the recent average (~5%).

As outlined in the Pacific Salmon Treaty (PST), the mid-point of the forecast provided by Canada will be used for management purposes unless the Panel adopts a more precautionary or optimistic forecast until in-season updates of run size are available. In 2009, as recommended by the Department of Fisheries Oceans (DFO) science staff, the FRP elected to adopt the 75% probability level of abundance for the Early Stuart run timing group and the 50% probability level for the other aggregates and stocks for planning purposes. The 2009 75% probability forecast for Early Stuart and the 50% probability forecasts for the other three management aggregates including Birkenhead were as follows: Early Stuart 165,000; Early Summer 739,000; Summer-run 8,677,000; and Late-run 907,000, of which 334,000 were Birkenhead type, for a total of 10,488,000 Fraser sockeye. Comparing forecasted stocks with the historic cycle line run sizes averages (1980-2005), the Early Stuart forecast was 32% of average, Early Summers (excluding miscellaneous stocks) 140% of average, Summers 78% of average, Lates (excluding Birkenhead and miscellaneous stocks) 102% of average, and Birkenhead 65% of average. Overall, the 2009 forecasted stocks were 77% of the cycle line average (excluding miscellaneous stocks).

Diversion Rate

The pre-season forecast of the proportion of Fraser sockeye diverting through Johnstone Strait was 32%. The estimate is based on the relationship between the average daily sea surface temperature measured at the Kains Island (Quatsino) lighthouse in May and June and the estimated post-season northern diversion for 1977-2008. The median water temperature at Kains Island for May & June 2009 was 11.0°C, which is very close to the time series median (11.3°C).

Timing Forecasts

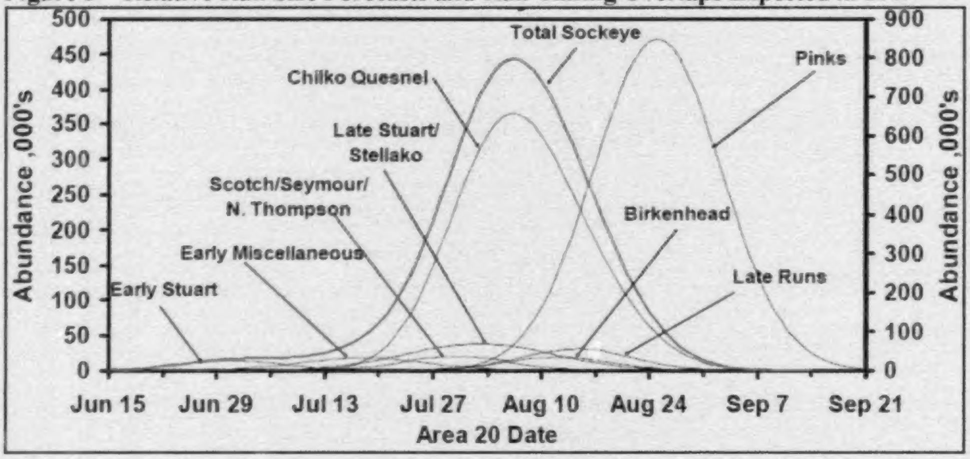
The forecast of the 50% date (peak timing) for Early Stuart and Chilko sockeye arriving to the Fraser River (A20) is July 2nd and August 3rd respectively. Forecasting methods use a linear multiple regression model with two predictor variables: 1) Gulf of Alaska eastward current speed (OSCURS) in May, and 2) Gulf of Alaska mean sea surface temperature (SST) in the previous November and December (2008). The primary predictor of timing is the May OSCURS sea current index. The following are the pre-season estimates of timing in Area 20.

Table 1 Timing Estimates Used for Pre-Season Planning in Area 20

	2009 Area 20 Timing
Early Stuart	July 2
Early Summers	July 26
Summer-run	August 5
Birkenhead	August 5
True Lates	August 11

The following figure graphically illustrates the relative run size forecasts and run timing overlaps expected in 2009.

Figure 1 Relative Run Size Forecasts and Run Timing Overlaps Expected in 2009



Environmental Conditions and Management Adjustments

Management Adjustments (MAs) are the addition of fish above the spawning escapement targets for the purpose of increasing the likelihood of achieving the spawning escapement targets. The general concept is that extra fish are allowed to escape upriver of Mission to account for anticipated differences between in-season versus post-season estimates of catch plus spawning escapement which may be due to a number of factors, including (but not limited to): critically high temperatures and/or discharge in the Fraser River, bias in estimates at Mission hydroacoustics and/or spawning ground escapement estimates, unreported catch, escapes from fishing gear, natural mortality, and/or predation. While all of these factors are included in the difference between estimates, the inputs used to estimate MAs are temperature and discharge for Early Stuarts, Early Summer and Summer-run sockeye and the 50% migration timing at Mission for Late-run sockeye.

For the Early Stuart, Early Summer and Summer-runs, MA estimates can be updated in-season as river conditions become known for management purposes. The pre-season MA expressed as a percentage of the spawning escapement goal and the number of sockeye this represents for 2009 pre-season run sizes are outlined below.

Table 2 MA Estimates used for Pre-Season Planning 2009

	Pre-season Run Size	MA (%)	MA
Early Stuarts	165,000	59%	92,000
Early Summers	739,000	42%	123,000
Summers	8,677,000	7%	243,000
Birkenhead Type	334,000	0%	0
True Lates (excl. Bi)	573,000	604%	2,535,000

2009 Escapement Plan

The *Fraser River Sockeye Spawning Initiative* has been a multi-year collaborative planning process to develop a long-term escapement strategy. The annual escapement strategy seeks a balance between long-term objectives and short-term practical considerations, and combines technical analyses with qualitative judgment. A plan is developed every year and is vetted through consultative processes prior to the fishing season. In general the annual exploitation rate targets are adjusted based on expected run size and environmental conditions. The table below outlines the final pre-season escapement plan for 2009.

Table 3 2009 Fraser River Sockeye Escapement Plan – Pre-Season Run Estimates

2009 Fraser River sockeye escapement plan using pre-season run size estimates (in thousands of fish).

Stock Group	Run Size Estimate of forecasted stocks	Run Size Reference Points		Total Mortality Rate Guideline	Total Allowable Mortality at Run Size	Escapement Target at Run Size	Management Adjustment (a)		Exploitation Rate after MA
Early Stuart	165	- 156 390	156 390	0% 0 - 60% 60%	5%	156	59%	92	0%
Early Summer	739	- 200 500	200 500	0% 0 - 60% 60%	60%	296	42%	123	43%
Summer	8,677	- 520 1,300	520 1,300	0% 0 - 60% 60%	60%	3,471	7%	243	57%
Birkenhead and Birkenhead-type Lates (b)	334			0% 0 - 60% 60%	60%	134			60%
true-Late (excl. Birk. Type)	573	- 420 1,049	420 1,049	20% 20 - 60% 60%	27%	420	604%	2535	20 - 60%
Cultus									20%
Sockeye Totals	10,488 *Est. Return*					4,476		2,993	

In-Season Assessment

The main challenges facing the FRP in 2009 was the extremely low levels of returning sockeye from all stock groups, with the exception of Harrison River sockeye, compared to pre-season expectations. Also determining the peak of the Early Summer and Summer-runs was difficult due to a protracted multimodal migration in Early Summers and a very flat migration in the Summer-run return. Additional challenges were the delay of Late-run sockeye in the Gulf of Georgia co-migrating with a very large pink return. In addition to the much lower than expected returns of sockeye, near record high temperatures in the Fraser River during the Early Summer and Summer-run migration heightened the concern of not meeting escapement objectives for some stock groups.

Migration and Timing

Determining the peak of the run is important. Timing is informative to models used to estimate run size and is also key to in-season estimates of MA. The following graphs illustrate the protracted multimodal migration for Early Summer-run sockeye and the small flat migration of Summer-runs which made it difficult to estimate the peak of the runs in-season.

Figure 2 2009 Early Summer Sockeye Migration Graph

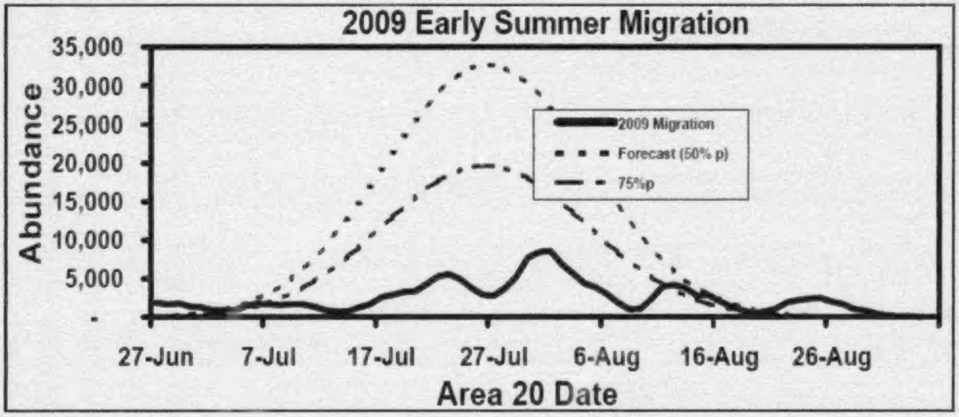
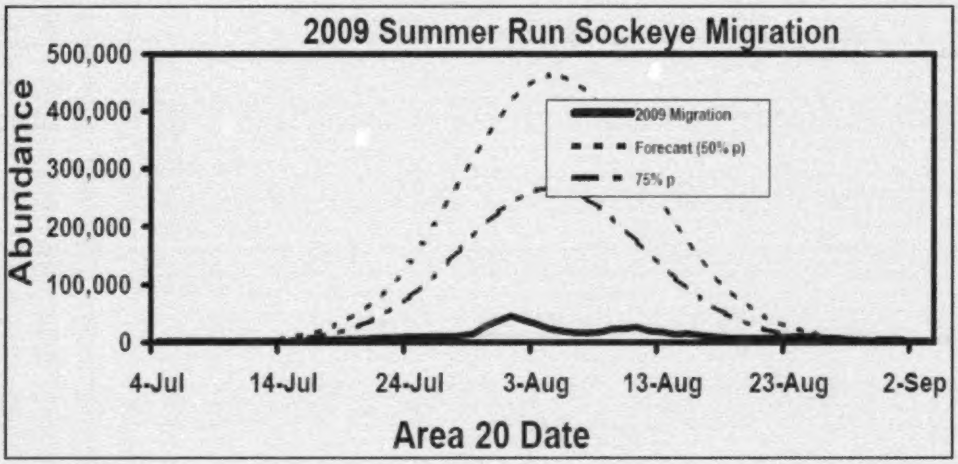


Figure 3 2009 Summer Run Sockeye Migration Graph



As in-season information was made available, it appeared that some runs were either very late or not materializing. In 2005 (the 2009 brood year) the timing was very late and returns that appeared to be very weak relative to expectations early in the season materialized much later on. However, in 2009 there were no indications that the runs were late. The age composition and the expected vs. observed relative stock contributions in test fishery samples were consistent with a weak return, not a late return. The table below illustrates expected age contributions compared to in-season observations. It was fairly clear that the 4_2 component of the return was much lower than expected, and due to the poor return of sockeye in

2008, it was highly unlikely that the low percentage of 4 year olds was due to a higher than expected return of 5 year olds.

Table 4 Expected vs. Observed Age Contributions

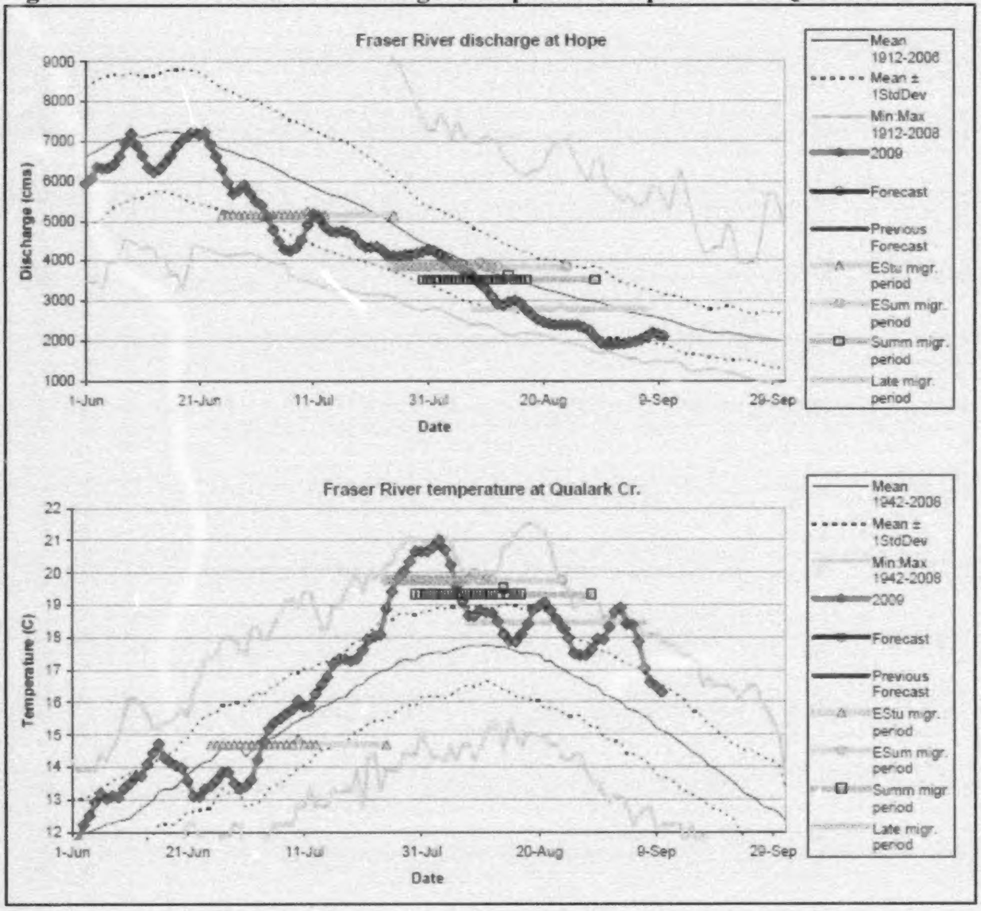
	Expected	Observed In-season [a]
Early Stuart	99%	93%
Early Summers	75%	43%
Summers	97%	81%
Birkenhead	67%	36%
Lates	79%	49%
Total	**94%**	**63%**

[a] Samples collected in gillnet test fisheries may underestimate 4_2 contributions due to gear selectivity. Also the observed samples are not weighted for passage.

Fraser River Environmental Condition and MA

In 2009 the Fraser River water temperature was above average for most of the sockeye migration while discharge was lower than average. Temperatures were extreme and near historical maximum observations for significant portions of the Early Summer and Summer-run migration. High water temperatures can cause serious adverse effects on resident and migratory fish, including: increased energy expenditure; reduced swimming performance; increased susceptibility to disease; reduced reproductive success; and mortality. The figures below illustrate observed Fraser River temperatures at Qualark Creek and discharge at Hope as well as the corresponding estimated stock aggregate migration periods.

Figure 4 Fraser River Discharge at Hope and Temperature at Qualark Creek



Management Adjustment models use both environmental conditions as well as adjustments to run timing as inputs. The in-season MA for Summer-run sockeye was very sensitive to changes in timing due to the addition or removal of observed data (used to inform the MA models) in the period of extreme high temperature. If the Summer run timing shifted later by one day, one extreme temperature day on the front end was replaced by a moderate temperature day on the back end and vice versa (See above). In addition, due to the small flat migration observed, the run size and the migration peak of Summer run was highly uncertain in-season. This resulted in MA estimates that were uncertain and sensitive to change in-season.

Late-run Delay

Prior to 1995 a three to six week delay in Late-run migration into the Fraser River was a regular occurrence. Since 1995 Late-run sockeye have been observed entering the Fraser River with little or no delay in most years resulting in large difference between estimates in most years and was associated with elevated levels of pre-spawn mortality in some of the earlier years. In 2009, it was apparent there may be some delay in Late-run migration as escapement projections for Late-run sockeye generated from approach area test fisheries were not being observed at Mission while other stock groups using similar projection methods were being observed at Mission. To confirm the presence of a delay a non-retention

Gulf of Georgia troll test fishery was implemented. The in-season estimate of delaying True Late-run sockeye was 100,000. This unexpected pattern of marine delay may result in increased en-route survival of Late-run sockeye in 2009.

Run Size

As the season progressed the FRP considered technical advice provided by the Pacific Salmon Commission and Fraser River Panel Technical Committee members and bilaterally adopted run sizes that reflected in-season assessment information. The following table highlights a timeline of run size changes that were adopted by the FRP. Changes in run size are bolded.

Table 5 Timeline of Run Size changes Adopted by FRP in 2009

	Pre-season	Jul-17	Jul-24	Jul-28	Aug-11	Aug-18	Aug-25	Aug-28
E. Stuart	165,000	***110,000***	***85,000***	*85,000*	*85,000*	*85,000*	*85,000*	*85,000*
E. Summer	739,000	739,000	***264,000***	***150,000***	***175,000***	*175,000*	*175,000*	*175,000*
Summer	8,677,000	8,677,000	8,677,000	8,677,000	***600,000***	***700,000***	***650,000***	*650,000*
Birkenhead	334,000	334,000	334,000	334,000	334,000	***100,000***	***60,000***	*60,000*
Harrison	69,000	69,000	69,000	69,000	69,000	***200,000***	*200,000*	*200,000*
L. Lates	573,000	573,000	573,000	573,000	573,000	***450,000***	*450,000*	***400,000***

It should be noted that the significant decreases in in-season run sizes eliminated any Total Allowable Catch (TAC) that was identified pre-season for most groups with the exception of a small amount of TAC available for a short period of time between August 21st and August 25th for Summer-run sockeye. During this time an estimated 52,800 Summer-run sockeye TAC was identified as a result of a change to the Summer-run proportional Management Adjustment (pMA) from .32 to .21. There was a great deal of uncertainty with the Summer-run run size, timing and the MA at this time and as more information became available in the coming days the run size was downgraded from 700,000 to 650,000 and the pMA increased to .28 from .21 which eliminated the Summer-run TAC on August 25th.

The final 2009 in-season estimates of run size were much lower than the pre-season forecasts for the management aggregates and Birkenhead. All aggregates were well below the 90% probability abundance forecast with the exception of the Late-run (excluding Birkenhead) which was estimated to be higher than the 75% probability abundance forecast. This can mostly be attributed to the good return of Harrison River sockeye which was estimated to have returned above the 25% probability abundance forecast. Preliminary results from the 2009 Harrison return indicate that the 3 year old age class (2007 ocean entry year) is strong relative to expectations and the 4 year old age class returned poorly relative to expectations. Harrison River sockeye are unique in that they have a different life history (they are immediate migrants and do not reside in a freshwater lake for 1 year or more) relative to other Fraser sockeye stocks.

Table 6 Pre-Season Forecasts vs. Final In-Season Estimates

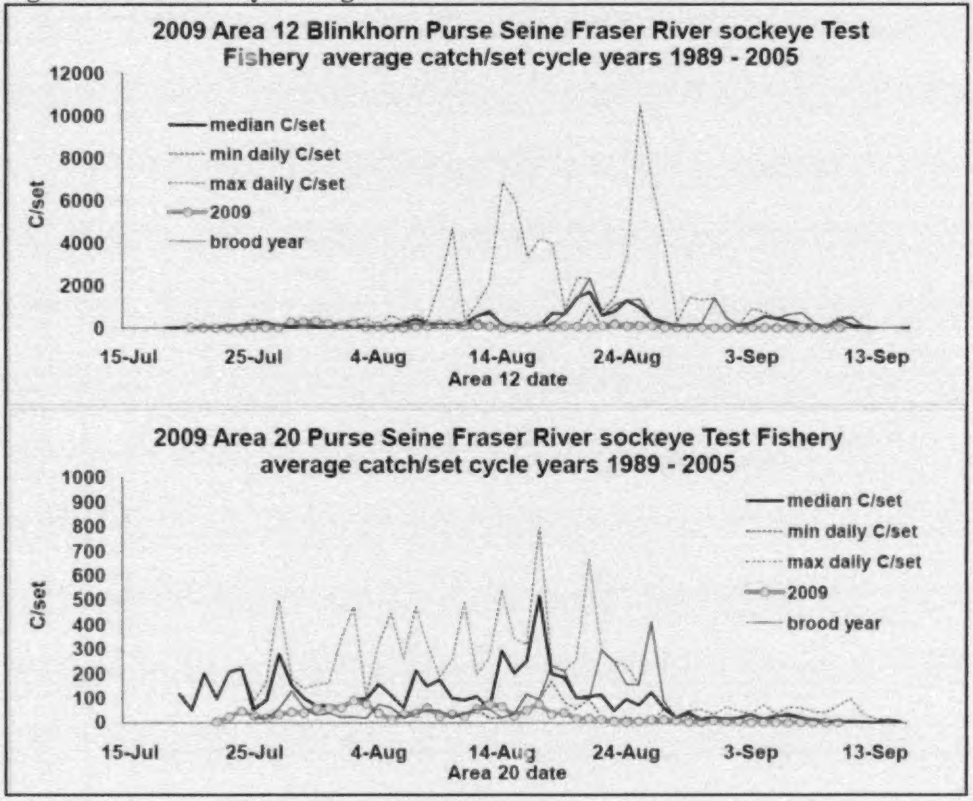
Run	Pre-Season Forecast			Final In-Season Estimate (Sep 23)
	50% Probability	75% Probability	90% Probability	
Early Stuart	255,000	165,000	107,000	85,000
Early Summer	739,000	443,000	264,000	175,000
Summer	8,677,000	4,914,000	2,858,000	650,000
Birkenhead	334,000	194,000	130,000	60,000
Harrison	69,000	46,000	33,000	200,000
L.Late*	504,000	277,000	164,000	200,000
Total	**10,578,000**	**6,039,000**	**3,556,000**	**1,370,000**

*Excluding Birkenhead (which includes Big Silver, Cogburn, Poole, Samson, Railroad, Green R., Douglas) and Harrison

Diversion Rate

The diversion rate of sockeye through Johnstone Strait was higher than forecast and was estimated to be ~44% in 2009. Diversion rate can have significant impacts on harvest opportunities of marine fisheries. The figure below describes 2009 test-fishery CPUE compared to historical CPUE in both approach areas over time.

Figure 5 Test Fishery Average Catches in Area 12 and Area 20



Fisheries

There were no directed sockeye openings for commercial or recreational fisheries in Canada or the United States in 2009. In Canada, a significant proportion of Fraser sockeye were captured as by-catch in FSC fisheries directed at other species. As well, there were limited FSC fisheries directed on Fraser sockeye, during a short period of time. A small number of sockeye were retained in US Treaty Indian ceremonial and subsistence (C&S) fisheries.

The table below outlines final in-season estimates of Fraser River sockeye catch in Canada and the US. Not included in the table is by-catch mortality associated with releases of sockeye in FSC, commercial and recreational fisheries directed at other species.

Table 7 Final In-Season Estimates of Fraser River Sockeye Catch in Canada & US

Total Fraser Sockeye Caught *	**107,080**
Test fisheries (incl. Albion and Qualark)	34,033
Canadian Catch	**68,850**
Canadian First Nation FSC fisheries- Marine	9,920
Canadian First Nation FSC fisheries- Fraser	58,930
Canadian commercial fisheries (includes commercial selective & FN economic)	0
Canadian recreational fisheries	0
United States Catch	**4,200**
U.S. non-Treaty Indian fisheries	0
U.S. Treaty Indian ceremonial fisheries	4,200

* Catch as of November 4th, 2009.

Total Allowable Catch

Pre-season TAC for sockeye was calculated using pre-season information such as pre-season run size forecasts and escapement goals. International sharing also took into account the Fraser River Aboriginal Fisheries Exemption (AFE), anticipated test fish catch as well as expected Management Adjustments (MA) for the run timing groups. Fisheries would not likely be initiated until in-season assessments provided updates to the pre-season information used to determine the TAC for each country. It should be noted that the TAC available for Late-run would not be accessed directly. In 2009 the Late-run TAC would be caught incidentally when fisheries were to be directed at other run timing groups that would have available TAC, such as the Summer-run. Unfortunately, in-season information indicated that there was no TAC available for the other run timing groups early on in the migration so the Late-run TAC could not be accessed. The following table describes changes to the anticipated TAC as in-season information was made available as well as the final in-season catch by aggregate.

Table 8 Final In-Season Estimates of Fraser River Sockeye Catch in Canada and US

	Pre-season TAC	Final In-season TAC	Final In-season Catch
Early Stuart	10,000	0	8,590
Early Summer	316,800	0	18,840
Summer-run	5,155,600	0	59,340
Birkenhead	198,500	10,500*	3,970
Late Lates	112,600	74,000*	16,370
Total	**5,793,500**	**84,500***	**107,100**

* note: BK & LL TAC are identified for the purpose of pursuing fisheries on more abundant Summer run stocks, and not for fisheries targeted on BK or LL

The following table outlines the final in-season TAC and catch for each country as of September 23, 2009. Note the table does not include release mortalities associated with fisheries directed at other species.

Table 9 Final In-Season TAC and Catch as of September 23, 2009

	Early Stuart	Early Summer	Summer-run	Birken-head	Late Lates	Total
Test Fisheries [a]	**1,940**	**5,520**	**15,760**	**1,580**	**7,340**	**32,140**
US Catch						
Commercial	0	0	0	0	0	0
C&S	0	480	2,080	660	990	4,210
US Total	**0**	**480**	**2,080**	**660**	**990**	**4,210**
US TAC	0	0	0	0	0	0
CDN Catch						
Commercial	0	0	0	0	0	0
Recreational	0	0	0	0	0	0
Other [b]	60	260	1,260	60	260	1,900
FSC	6,590	12,580	40,230	1,670	7,780	68,850
CDN Total	**6,650**	**12,840**	**41,490**	**1,730**	**8,040**	**70,750**
CDN TAC [c]	0	0	0	10,500	74,000	84,500

[a] Panel approved test fisheries

[b] Other catch is sockeye captured in multi-species non-Panel approved test fisheries (Albion and Qualark)

[c] BK & LL TAC are identified for the purpose of pursuing fisheries on more abundant Summer run stocks, and not for fisheries targeted on BK or LL

Fraser Sockeye Exploitation Rates

Due to the low return of Fraser sockeye in 2009, considerable efforts were made in-season to reduce fishing impacts on migrating sockeye while providing some opportunity for First Nations to harvest other salmon species, and in some cases sockeye for FSC or C&S purposes. Although the return of sockeye was unexpectedly low, a considerable proportion of the total sockeye return migrated to terminal spawning areas. The in-season estimate of exploitation rate was the lowest recorded in the recent historical record (1952-2009) for Fraser sockeye and is estimated to be ~8% in 2009.

The table below outlines potential exploitation rates based on 2009 TAM rules and pre-season and in-season information as well as the actual observed preliminary post-season estimate of exploitation rates by aggregate and in some cases stock.

Table 10 Potential Exploitation Rates

	pre-season *	in-season TAM+MA **	prelim. post-season
E. Stuart	0%	0%	10%
E. Summer	43%	0%	11%
Summer	57%	0%	9%
Birkenhead ***	60%	20%	7%
Late Lates ***	20%	20%	4%
Cultus ***	20%	20%	< 3%

* Pre-season allowable exploitation rates are based on the 2009 Total Allowable Mortality (TAM) rules developed in the FRSSI process

** In-season allowable exploitation rates are based on the final in-season run size, MA and the 2009 TAM rules

*** Birkenhead, Late Lates and Cultus exploitation rates for the purpose of catching available Early Summers and Summer-run sockeye- not for targeting fisheries on Late-run groups

Post-Season

Sockeye Migration and Escapement Estimates

Fraser River water temperatures were extreme for much of the Early Summer and Summer-run migration while Fraser River discharge was below the historical mean for most of the sockeye migration. Fraser River temperatures exceeded levels that are thought to have impacts on fish health and migration (>18.0 C) and approached levels that are thought to be lethal to sockeye (~ 21.0 C) for a short time period at the end of July. Conditions on the spawning grounds were reported as good with the exception of some low water conditions observed in the South Thompson and Quesnel watersheds. Low water levels were reported to be restricting or limiting access to the spawning grounds in some cases; however, there were no reports of any significant delay to any of the major tributaries that experienced low water conditions in 2009. Other reports from stock assessment staff indicated that fish health on the spawning grounds was good and there were no reports of significant pre-spawn mortality observed in any systems in 2009. The table below outlines preliminary escapement information to date relative to the escapement goals at the final in-season run sizes. A summary of preliminary spawning ground assessments for Summer-run, Birkenhead and Late-run sockeye will be available in January, 2010.

Table 11 Preliminary Escapement Information to Date

Management Group	**Escapement Goal** at final in-season run size	**Potential Spawning Escapement Target** [a]	**Projected Escapement** [b]	**Preliminary Spawning Escapement** [c]	**Pre-Spawn Mortality (PSM)** [c]
Early Stuart	85,000	76,410	55,370	45,327	5.0%
Early Summer	175,000	156,160	97,600	103,716	4.6%
Summer-run	520,000	590,660	461,450	**482,819**	**0.7%**
Birkenhead [d]	48,000	56,030	56,030	–	–
Late-run	320,000	383,630	[e]	–	–
Total	**1,148,000**	**1,262,890**	–	–	–

[a] Potential spawning escapement = total run size minus catch-to-date.

[b] Projected Escapements = (run size- catch)*(1-projected DBE)

[c] As of December 1st 2009

[d] Includes other Birkenhead type stocks

[e] pMA and DBE estimates are available only for non-Harrison component of Late run, and so are unavailable for Late-run aggregate.

Payback

The U.S. share shall be adjusted annually for harvest overages and underages in accordance with annual guidance provided by the Commission.

Southern BC Mainland Pinks and Fraser River Pinks

Fraser River Pink

The 2009 50% probability forecast and escapement goal for Fraser pink salmon was 17,535,000 and 6,000,000, respectively. The final in-season run size estimate for Fraser River pink salmon was 19,500,000 which is near the 25% probability level of abundance forecast.

The U.S. share of the annual Fraser River pink salmon TAC, harvested in the waters of Washington State is set at 25.7% as per the PST Annex IV Chapter IV agreement.

In 2009 there were concerns expressed by Canada and the US around sockeye by-catch in directed pink fisheries as there was no TAC available for sockeye when pink fisheries were anticipated. The Parties were unable to come to agreement on a single method for determining when Pink directed fisheries could begin. As such, the Parties both stated their rule for starting Pink fisheries and the PSC assessed their fishing plans against each Party's stated rules. The US proposed a 5% stock composition rule, that is, that their fisheries could begin when the abundance of Fraser sockeye in the area where the Pink fisheries would occur was below 5%. Canada proposed a 1% mortality rule in order to implement directed pink fisheries, that is sockeye stock composition and sockeye by-catch release mortality rates were assessed to ensure overall mortality was <1% . The rule was calculated by gear type and area and can be described by the following:

$$\textbf{Release Mortality}_{\textbf{gear}}\ \textbf{x Sockeye/Pink Ratio}_{\textbf{area}} < \textbf{1\% Mortality}_{\textbf{sockeye, gear, area}}$$

The sockeye/pink ratio can be defined as sockeye/sockeye+pink and was generally determined by taking the most recent three day average of the ratio by area observed in test fisheries. The following outlines the sockeye release mortality by gear type used in 2009.

Table 12 Sockeye Release Mortality by Gear Type Used in 2009

Seine	25%
Troll	10%
Gillnet	60%
Reefnet	.5%
Beach Seine	5%

For the Parties to work towards achieving their share of pink salmon in directed pink fisheries, all commercial fishers were required to release all sockeye with the least possible harm. The exception was the US Treaty Indian Fisheries where harvesters were allowed to keep sockeye by-catch for C&S purposes. Due to these special circumstances, this fishery required timely reporting of catch in order to confirm sockeye impacts were at expected low levels.

Although the shares by both parties were not achieved, effort and catch was high in comparison to recent years due to the lack of sockeye opportunities, new directed pink opportunities, a high abundance Fraser pinks, and an unusually high abundance of non- Fraser pinks in 2009. However, concerns for by-catch, market conditions and a low diversion rate through the northern entry in late August reduced additional harvest opportunities. The table below outlines preliminary Fraser pink catch estimates in Canada and the United States in 2009.

Table 13 Preliminary Fraser Pink Catch Estimates in Canada and US in 2009

Total Fraser Pink Caught *	**4,302,150**
Test fisheries (incl. Albion and Qualark)	19,440
Canadian Catch	**1,556,480**
Canadian commercial fisheries (includes commercial selective & FN economic and demonstration fisheries)	1,442,840
Canadian First Nation FSC fisheries	11,860
Canadian recreational fisheries	101,780
United States Catch	**2,726,230**

*Fraser pink catch as of January 5th, 2010.

The final estimate of escapement in recent years is calculated as the final run size minus catch (spawning ground estimates for pink salmon have not been undertaken since 2001). The net escapement for the 2009 return was 15,225,000 pink salmon. The next odd year pink run forecast will be based on a fry estimate assessment program that will be conducted in the spring of 2010.

Southern BC Mainland Pinks

This was the off cycle year for Mainland Inlet pink salmon. Expectations for 2009 were highly uncertain due to extremely variable returns throughout the historic time series. The survival trend for the 2007 returns was up slightly from the previous brood year in 2005. However, preliminary assessments in 2009 are showing some significant improving trends in off-cycle pink salmon returns in some areas. The better than expected returns to the Glendale River allowed for a small directed pink salmon gill net fishery in lower Knight Inlet in the Glendale River area.

The objective for managing these stocks was to meet target escapement levels. If surpluses were identified, then fisheries could be conducted terminally. The fisheries that occurred were structured to minimize the by-catch of non-target species and following the domestic sharing arrangements set out in the IFMP.

As in 2008, the assessment plan entailed extensive visual coverage of the key Area 12 Mainland Pink systems with a focus on improved escapement and smolt studies. Flights over the Phillips River in Area 13 were also conducted in 2009.

Pink catch and release information from all fisheries can be found in Table 28.

First Nations

First Nations fishing opportunities for pink salmon were not restricted; however, there was little to no directed pink harvest in terminal areas this year. There is normally very little effort on Mainland Inlet pinks in terminal areas due to the availability of fishing opportunities in other more desirable locations such as Johnstone Strait.

Non-Tidal Sport

There were no targeted pink fisheries in non-tidal waters on Mainland Inlet pink stocks.

Commercial

The Glendale River area (12-27 to 12-29) was open to commercial gill net, seine and troll beginning Monday August 31. There was no seine or troll interest in the opportunity; only three gill net vessels participated for a catch of 746 pinks. The area closed on Friday September 4. No further commercial opportunities occurred.

Stock Status

A fairly cautious approach to the in-season management was employed for 2009 due to the high variability in the returns encountered over the recent years for these stocks. In keeping with plans for this year, there were very limited commercial fisheries on Mainland Inlet pinks. Preliminary assessments of the pink returns to the Mainland Inlet systems demonstrated generally higher returns in relation to the 2007 brood year. Preliminary 2009 pink escapement estimates for some key systems in the Area 12 Mainland Inlets are: Kakweiken –270,000 (36,850 brood), Glendale –297,000 (264,227 brood), Ahnuhati –9,200 (4,926 brood), Kingcome (index clear tributaries) –350 (175 brood) and Wakeman (index clear tributaries) – 1,400 (739 brood). These estimates are preliminary and are subject to change pending further post season analyses.

In 2009, better than expected pink returns were seen in a number of areas including the Mainland Inlets.

Southern BC AABM Chinook

Objectives and Overview

Chinook fisheries are managed by either an AABM (aggregate abundance-based management) or ISBM (individual stock-based management) regime. Allowable harvest impacts in AABM areas are determined by provisions in the Pacific Salmon Treaty (PST) and subject to domestic considerations, such as conservation and allocation. In Southern BC, all AABM chinook fisheries are located off the WCVI, including components of the recreational fishery, First Nations fisheries, and the WCVI Area G troll fishery.

For the period October 2008 through September 2009, the forecast chinook abundance index was 0.72 of the PST base period. Therefore, under treaty provisions, the maximum allowable catch was 107,800 chinook for WCVI AABM fisheries; an overall 30% reduction consistent with the new treaty provisions that came into effect in January 2009. Further considerations for managing chinook catch in WCVI AABM fisheries are driven by concerns regarding the low status of natural WCVI, Lower Strait of Georgia (LGS), and early-timed Upper Fraser River chinook and Interior Fraser coho populations.

Ocean fisheries in Canada that intercept WCVI origin chinook are limited to a 10% exploitation rate, even if PST provisions allow for a higher catch. Management measures are in place to reduce the impact of fisheries on WCVI chinook while still providing harvest opportunities.

Additional efforts were made in 2009 to reduce the marine harvest rate of fisheries that intercept a number of low status chinook populations. Further constraints in the form of time and area limits were introduced in the troll fishery to protect early timed Upper Fraser chinook stocks.

AABM chinook catch and release information from all fisheries can be found in Table 28.

Table 14 Pre-Season and Post-Season Total Allowable and Preliminary Catch Estimates for October 2008-September 2009 WCVI AABM Chinook

	Pre-Season	Post-Season
WCVI AABM Abundance Index	0.72	under review
WCVI AABM Chinook TAC	107,800	under review
Offshore Recreational Catch	50,000	68,916
First Nations Catch	5,000	3,381
Area G Troll Catch	**52,800**[a]	53,191
Total AABM Catch		**125,488**

[a] The total Area G troll TAC is calculated as the difference between the WCVI AABM chinook TAC less offshore recreational catch and First Nations catch. For 2009, this resulted in a reduction to the Area G troll TAC to comply with the 2008 PST.

Recreational

Fishing regulations in WCVI recreational AABM areas include barbless hook requirements to lower post-release mortality on sub-legal size chinook (less than 45 cm), and a daily limit of two chinook. Additional conservation measures include the '77 cm maximum size limit', imposed in those portions of Areas 124-127 that lie shoreward of a line drawn 1-mile seaward of the surfline. This area is commonly referred to as the 'Chinook corridor', and is in place to protect migrating WCVI origin chinook. In 2009, in the area seaward of the 'Chinook corridor' recreational harvesters were permitted to retain 2 chinook per day with no maximum size limit while in the 'Chinook Corridor' recreational harvesters were permitted to retain 2 chinook between 45 and 77 cm in length per day.

Catch in the WCVI recreational fishery is estimated through a creel survey, which collects effort (number of boat trips), and catch per unit effort (CPUE) data. Catch for any given species within a defined time-area stratum is estimated by multiplying effort by CPUE. Total effort is estimated through vessel counts, gathered through either aerial or boat surveys of the fishing area. CPUE is estimated from interviews with anglers at specific landing sites and from trip logbooks and manifests submitted by lodges and guides through a voluntary monitoring program. Data regarding the daily activity profile of the fishery, fishing locations, and the proportion of guided versus un-guided effort are also gathered from angler interviews.

Total recreational catch and release in the 2009 WCVI AABM fishery was approximately 68,775 and 35,584 chinook, respectively, during the survey period (June-Sept). There was some additional catch during winter fisheries that occurs in near-shore areas. However, catch was very low in the winter period because inclement weather deters anglers. Overall, previous sampling has indicated that there is virtually no effort during this period.

Figure 6 Recreational WCVI Chinook AABM Catch and Effort, 1995-2009

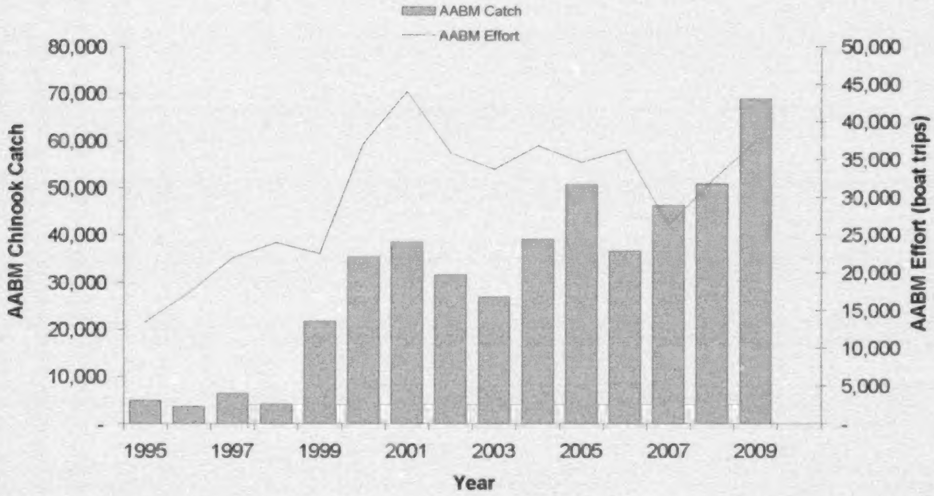


Table 15 Estimated WCVI Recreational AABM Effort, Chinook Catch, and Chinook Releases by PFMA, 2009

	Area	AABM Effort (Boat Trips)	AABM Chinook Catch	AABM Total Chinook Releases
	Port Renfrew (21)	184	202	53
	Alberni Inlet (23)	10,747	68	17
	Barkley Sound (23)	6,863	10,125	8,419
	Clayoquot (24)	436	21	95
	Nootka (25)	-	-	-
	Kyoquot (26)	7	-	-
	Quatsino (27)	218	46	80
Offshore	**Area 121**	2,449	7,691	2,320
	Area 123	5,917	26,837	12,544
	Area 124	2,751	10,084	8,566
	Area 125	3,236	5,765	1,658
	Area 126	1,595	3,530	-
	Area 127	2,952	4,406	1,833
WCVI	**Total**	37,353	68,775	35,584

First Nations

The 2009 First Nations AABM Chinook catch was estimated to be 3,381.

Commercial

After the completion of the 2009 CTC chinook model calibration, the AABM Canadian allowable harvest was 107,800. It was anticipated that the FSC harvest would be 5,000; and that the recreational catch would be 50,000, leaving 52,800 available to plan for commercial harvest by Area G troll.

For the 2008/2009 chinook year, fisheries continued to be shaped by conservation concerns for the following domestic stocks: early-timed Fraser River chinook, Interior Fraser River coho, WCVI origin chinook salmon, and LGS chinook. As well, additional management measures were introduced in-season to protect spring and summer-run Fraser River chinook stocks that were observed to be returning at very low levels. The following management measures were used to protect these domestic stocks:

- **October to March period**
  During the period from October 1 to March 15, a harvest was limited to no more than 20% of the Area G annual TAC based on the preliminary forecast.

- **March 16 to April 19 Period**
  For the 2008/09 year, a full time-area closure was maintained from March 15 to April 20 to avoid interception of early-timed Fraser chinook.

- **Late April/mid June period**
  During the period from April 20 to June 15, a harvest of no more than 40% of the Area G annual TAC was allowed. In addition, effort was limited to recent year averages, and areas of SWVI were closed until May 15 (partial openings from May 2-15) in order to avoid interception of early-timed Fraser chinook.

- **June 16 to July 31 period**
  For the 2008/09 year, a full time-area closure was maintained from June 16 to July 31 to avoid interception of spring/summer run Fraser chinook.

- **August period**
  During the August period, a harvest of no more than 20% of the Area G annual TAC was recommended based on the PST chinook model calibration and assigned harvest levels for the outer WCVI area. In addition, the fishery was managed to minimize mortality on wild coho through: i) a maximum interception of coho and ii) the mandatory use of large plugs. As well, the fishery was managed to minimize mortality of WCVI origin chinook through the use of closures during time and near shore areas where WCVI chinook stocks were prevalent.

- **September period**
  During the September period, a planned harvest of 20% of the Area G annual TAC is recommended based on the PST chinook model calibration and assigned harvest levels for the outer WCVI area. The harvest level may increase if there is available remaining WCVI AABM TAC after accounting for First Nation and recreational fisheries. Any harvest opportunities prior to September 15 must be managed to avoid interception of coho and WCVI origin chinook. After September 15, retention of adipose fin clip (AFC) hatchery origin coho would have been permitted however during the 2008/2009 season there was no available WCVI AABM TAC thus no commercial troll fishery occurred.

For all troll fisheries, selective fishing practices were mandatory, including single barbless hooks and revival tanks for resuscitating non-retention species prior to release.

Since 1999, a major objective for the management of the WCVI troll fishery has been to distribute the catch throughout the fall-winter-spring-summer periods. This objective was continued in 2008/2009.

Fisheries were also monitored to determine encounter rates of other species and estimate numbers of released chinook. Biological sampling was conducted for size distributions, and stock compositions (via CWT, DNA and otolith samples).

Table 16 Post-Season Preliminary Monthly Catch Estimates for 2005/06 to 2008/09 WCVI AABM Chinook Troll Fisheries

	2008/2009	2007/2008	2006/2007	2005/2006
October	1,882	3,137	16,000	12,198
November	1,209	0	1,200	2,156
December	1,107	0	800	1,689
January	3,394	1,634	5,500	1,468
February	1,540	1,911	2,600	5,154
March	586	0	2,300	7,883
April	3,616	1,717	5,200	20,561
May	18,062	11,105	23,500	7,078
June	12,165	15,944	25,000	20,807
July	0	0	0	0
August	9,630*	9,099*	0	886*
September	0	45,157	6,000	24,098
Total	**53,191**	**89,704**	**88,100**	**103,978**

Southern BC ISBM Chinook

Objectives and Overview

In addition to the PST regime, Canada implemented management actions as required to ensure conservation of Canadian origin chinook and to meet domestic allocation requirements. These chinook fisheries were managed to harvest rates on an individual stock basis (ISBM).

Measures were taken in 2009 to protect WCVI, LGS, early-timed Upper Fraser River chinook stocks, and spring/summer-run Fraser River chinook stocks. Specific management actions were taken to protect WCVI origin chinook in Canadian ocean fisheries (not including enhanced terminal areas), the harvest of which was restricted to an exploitation rate of 10%. Most Southern BC commercial fisheries were regulated so that impact on WCVI wild chinook stocks was minimized. Robertson Creek hatchery-origin chinook were harvested in the terminal area of Alberni Inlet by First Nations, recreational and commercial net fisheries.

LGS chinook stocks are experiencing a period of low productivity and management measures continued to be in place throughout 2009 to protect these stocks. As in recent years, recreational chinook non-retention areas and finfish closures were in place throughout the Strait of Georgia to reduce impacts at critical times and in key areas and commercial retention of chinook was not permitted in the Strait of Georgia and in Johnstone Strait.

In addition to these specific restrictions, in 2009 area and time closures were in place to protect returning early-timed Upper Fraser River chinook and spring/summer-run chinook stocks during sport and commercial fisheries. There was a general requirement in all commercial fisheries to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks. Catch monitoring included requirements for daily catch reporting, mandatory logbooks, hailing catches on a regular basis, and independent on-board observers on vessels when requested. Post-release mortality information for chinook included in ISBM management was determined from studies conducted in 2000-2001 and detailed in the Canadian Stock Assessment Secretariat, Research Document 99/128 (CSAS, Doc 99/128).

ISBM chinook catch and release information from all fisheries can be found in Table 30.

Recreational

West Coast Vancouver Island

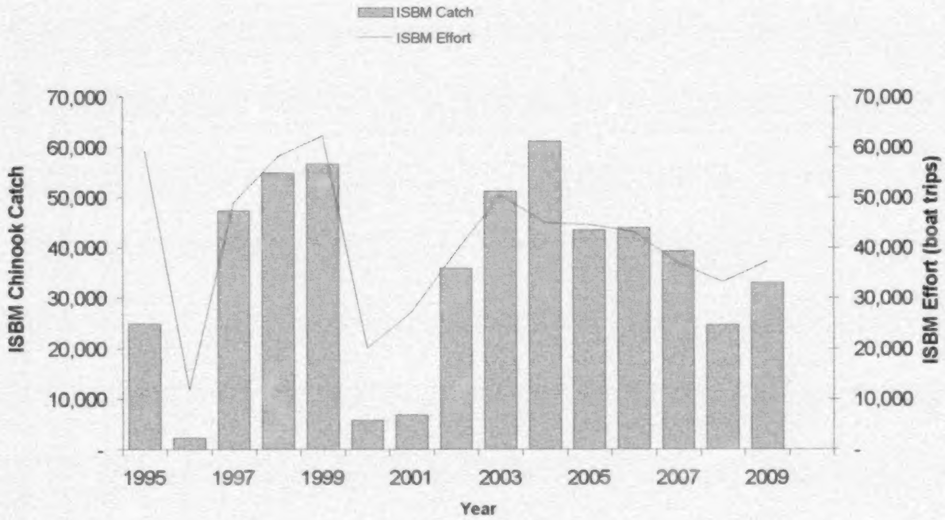
The WCVI ISBM chinook sport fishery was regulated using minimum/maximum size limits, possession limits and area closures to reduce impacts of the recreational fishery on natural (un-enhanced) WCVI chinook stocks. Daily limits were two chinook per day. Regulations in 2009 required chinook retained within the chinook corridor (one nautical mile seaward of the surfline) to exceed a minimum fork length of 45cm, and be smaller than the maximum size limit of 77cm. This restriction was in effect commencing July 15th for those waters north of Estevan Point and commencing August 1st for those waters south of Estevan Point. However, retention of chinook greater than 77cm was permitted in some terminal areas with a high percentage of returning hatchery origin fish. Area restrictions include areas "closed to salmon fishing" or "closed to all fin fishing", depending on the vulnerability of local stocks of concern. These closed areas continued in 2009.

Total recreational chinook catch for the 2009 WCVI ISBM fishery was approximately 33,135 fish, which is an increase from the 2008 catch of 24,381 chinook. The 2009 effort was 37, 447 boat trips which is an increase from the 2008 effort level of 33, 113 trips.

Table 17 Estimated WCVI Recreational ISBM Effort, Chinook Catch and Release by PFMA 2009

	Area	ISBM Effort (Boat Trips)	ISBM Chinook Catch	ISBM Total Chinook Releases
Inshore	Port Renfrew (21)	545	1,229	119
	Alberni Inlet (23)	6,451	2,907	195
	Barkley Sound (23)	12,026	16,013	10,916
	Clayoquot (24)	779	54	89
	Nootka (25)	13,350	11,090	6,578
	Kyoquot (26)	442	330	-
	Quatsino (27)	3,854	1,512	2,925
Offshore	Area 121	-	-	-
	Area 123	-	-	-
	Area 124	-	-	-
	Area 125	-	-	-
	Area 126	-	-	-
	Area 127	-	-	-
WCVI	Total	37,447	33,135	20,822

Figure 7 Recreational WCVI Chinook ISBM Catch and Effort, 1995-2009



Inside Areas: Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait

For Johnstone Strait and the Strait of Georgia north of Cadboro Point, sport catch regulations included an annual limit of 15, a daily limit of two and a minimum size limit of 62 cm. For the Canadian portion of Juan de Fuca Strait south of Cadboro Point, the daily limit was two chinook over 45 cm and a seasonal limit of 20 chinook was in effect.

In those waters near Victoria between Cadboro Point and Sheringham Point (Areas 19-1 to 19-4 and Area 20-5), retention regulations were adjusted from March 2 to May 14 to minimize the harvest of wild, early-timed chinook stocks of concern returning to the Fraser River. Recreational harvesters were permitted to retain two chinook per day which may be wild or hatchery marked between the size limit of 45cm and 67cm or hatchery marked only chinook over 67 cm in length.

In 2009 marine recreational fisheries were monitored by creel surveys in three main areas; 1) Juan de Fuca including Victoria (south of Cadboro Point) and Juan de Fuca Strait through PFMA 20-1; 2) Strait of Georgia including Areas 14 through 18, that portion of Area 19 north of Cadboro Point, 28 and 29 and 3) Johnstone Strait including Areas 11 to 13. Monitoring of the Strait of Georgia sport fishery (April to October) and Juan de Fuca Strait sport fishery (January to December) has been fairly consistent from year to year using an access point (landing site) survey for collecting catch, CPUE, and biological information combined with an aerial survey for effort counts. The Johnstone Strait creel survey commenced in Area 13 in June and continued through until end of September; and from June through August to include Areas 11 and 12.

Overall, effort in the Strait of Georgia increased by about 50% from 2008 to 2009. The corresponding catch increased by about 78%. Juan de Fuca Strait effort also increased by approximately 40% and the catch increased by about 28%. As part of these creel surveys, encounter rate information was also collected for legal and sub-legal chinook and coho. Releases of chinook in the Strait of Georgia and Juan de Fuca Strait were significantly higher in 2009.

Table 18 2009 Catch and Effort for Inside Recreational ISBM Fisheries

Fishing Area	Survey Period	Chinook Kept	Chinook Released	Effort (Boat Trips)
Strait of Georgia	May - Sept	8,899	15,194	58,965
Johnstone Strait	June - Aug	19,482	22,765	16,807
Juan de Fuca Strait	Jan-Sept	28,265	34,371	60,150
Fraser River	May - Oct	21,579	16,160	n/a
TOTAL		**78,225**	**88,490**	**135,922**

First Nations Fisheries

WCVI FSC and Economic Opportunity Fisheries

An agreement was reached in 2009 with the Hupacasath and Tseshaht First Nations for an economic fishery targeting Somass chinook (Area 23). Hupacasath and Tseshaht First Nations harvested 7,622 chinook in upper Alberni Inlet. WCVI First Nation's (excluding Tseshaht and Hupacasath FN's) catch reports indicate a combined ISBM chinook harvest of 1,404. Total WCVI First Nations ISBM catch estimate is 9,026.

Strait of Georgia FSC Fisheries

Data are still being compiled on various First Nations catches in the Strait of Georgia; however, preliminary catch is estimated at 977 chinook. There were no economic opportunity fisheries.

Cowichan Tribes conduct a spear fishery in the lower Cowichan River. Data provided by Cowichan Tribes show a preliminary 2009 estimate of 475 adult and 30 jack chinook. Additional biological data was collected from this fishery, including collection of heads from CWT/AD marked chinook.

Fraser River FSC and Economic Opportunity Fisheries

FSC fisheries, as well as economic opportunity fisheries took place in the Fraser River in 2009 harvesting ISBM chinook in the both the upper and lower reaches of the Fraser River. Approximately 3,241 chinook were harvested by First Nations in the upper river FSC and economic opportunity fisheries, and approximately 29,460 chinook were harvested in the lower river; for a total chinook harvest of 32,701.

Commercial Fisheries

In 2009 several commercial fisheries targeted ISBM chinook including gillnet and seine fisheries in Alberni Inlet (Barclay Sound) and Tlupana Inlet (Nootka Sound).

Area B Seine

In 2009, seine fisheries occurred on August 24th, 25th, and 31st in upper Alberni Inlet targeting Somass chinook. Three vessels fished during these openings with a total chinook catch of 2,598 chinook.

Area D gill net

In 2009, gill net fisheries occurred in Alberni Inlet and Tlupana Inlet. These fisheries target hatchery returns to Robertson Creek and Conuma River hatcheries. On August 24th, 25th, 31st and September 09th in upper Alberni Inlet (Area 23) targeting Somass chinook. An average of 77 vessels participated in the first three openings, with 18 vessels participated in the final openings. The total gill net chinook catch in these opening was 3,671. On August 18 there was an Area D gillnet opening in Tlupana Inlet. The total chinook catch in that fishery was 3,496. The total Area D WCVI ISBM chinook harvest was 7,167 chinook.
The total WCVI commercial net ISBM harvest was 9,799 chinook.

Stock Status

Fraser River and Area Chinook

Interior Fraser

Spring chinook returns to the Fraser continue to be of concern. Returns to the Spring 5_2 (stream-type or yearling) aggregate were mixed. Some stocks exceed parental escapements such as Slim Ck. (3,173) and the upper Fraser at Tete Jaune (2,755), however many others failed to reach parental levels and in aggregate, returns were approximately 85% of the parental brood. Returns to the Spring 4_2 aggregate were very poor and of concern for the aggregate as a whole. Returns averaged only 22% of parent brood escapements. Of particular concern were Nicola (440), Coldwater (26) and Louis (10).

Yearling (stream-type) summer chinook returns were also poor and averaged only 65% of brood year escapements. Chilko (8,548) and Quesnel ~1,944 averaged about 55% of parental escapements, while Clearwater (5,982) exceeded brood. In contrast, the late South Thompson ocean-type aggregate was relatively strong again, and while performance of escapements varied, in aggregate, levels were roughly equivalent to those of the parental brood. South Thompson declined from brood (45,049), whereas Lower Adams (6,399) and Lower Shuswap (24,654) both exceeded parental escapements.

Lower Fraser River

Spring Run: Lower Fraser Spring chinook returns were mixed. Returns to Birkenhead River (625) were much improved compared to 2008, however, escapement to the upper Pitt River (Blue Creek) were very poor at only 90. Information for other populations is unavailable at this time.

Summer-run: Summer-run chinook returns to Maria Slough were assessed visually in 2009. The escapement of ~546 is very slightly less than the parental brood year (574). Information for other summer populations is not available at this time.

Fall-run: Annual lower Fraser River fall-run chinook stock group escapements are, on average, large (>100,000). The major contributor and principal focus of assessment of this stock group is chinook returning to the Harrison River, and Harrison River transplants to the Chilliwack River. For both the Harrison and Chilliwack Rivers, the field study portions of the escapement assessments are complete; however, analyses are ongoing. Extreme rain events significantly raised water levels in these systems make in-season assessments difficult. Preliminary escapement estimates are not yet available.

Howe Sound/Squamish River

No information is available at this time.

Burrard Inlet

No information is available at this time.

Boundary Bay

Escapement data are unavailable at present.

Strait of Georgia Chinook

Fall Stocks

Total returns to Strait of Georgia streams north of Nanaimo, virtually all of which are enhanced, have been stable for the last seven to ten years (Puntledge and Englishman) or eighteen years (Big Qualicum and Little Qualicum). In general, all have had recent escapements near or above target.

On the mainland side of the northern Strait of Georgia, Sliammon and Lang hatcheries continue to have variable returns. There are a few very small wild populations remaining in the Theodosia and Skwakwa rivers, and those rivers entering Jervis Inlet, where assessment data are poor or not available. Historically, a large proportion of the chinook stock aggregate originating from rivers north of Nanaimo migrates into central and northern BC and Alaska. Exploitation rates on this stock aggregate have gradually been reduced over the last 15 years, thus the stable trend in annual returns to rivers over this period suggests a reduction in marine survival.

In the southern Strait of Georgia, returns to the Nanaimo River have been generally stable since 1995 at slightly higher levels than those recorded back to 1975. The area of most concern is further south, where chinook stocks returning to the Chemainus, Cowichan, and Goldstream Rivers have experienced continued declines. Unlike the central and northern Strait stocks, these southern populations historically rear within the Strait of Georgia. However, there appears to be an increasing proportion rearing off the west coast of Vancouver Island.

In particular, Cowichan River chinook (a wild chinook indicator stock) has been in decline since 1995-1996. The status of this population continues to be a stock of concern. According to preliminary estimates, the 2009 escapement is the lowest on record since 1953. Exploitation rates on Cowichan chinook were historically high (averaging 80-90%), declined to a low of 34% on the 1995 brood year, and then have steadily increased to 75% on the 2000 and 2001 brood years. Various harvest restrictions have been put into effect over the last 20 years to reduce exploitation on Strait of Georgia chinook. Additional conservation measures were introduced in 2005 to reduce the harvest of Cowichan chinook by the Strait of Georgia sport and WCVI troll fisheries. First Nations harvest of Cowichan chinook has been substantially reduced in recent years. The declining returns to various southern Strait of Georgia rivers are attributed to high exploitation rates, a drastic decline in marine survival, and in some cases, freshwater habitat issues.

The preliminary 2009 escapement to Cowichan River is 1250 adult and 300 jack chinook. Of these approximately 300 adults and 50 jacks were used for brood and about 475 adults and 50 jacks were caught in local FSC fisheries. The low number of age 2 jack chinook indicates that the 2010 escapement may be even lower.

Spring/Summer Stocks

Of the three early runs in the Strait of Georgia, assessment data are available for Puntledge and Nanaimo; the Cowichan summer run still exists but it is small and quantitative data are not available for that stock. Efforts to recover Puntledge Summers to viable levels have resulted in improved returns to the river since 1999. The 2006 and 2007 natural spawning escapements range from 200 - 500 adults (not including brood capture), which is down from the record high in 2005 of approximately 2,500 adults, but substantially higher than escapements recorded in the previous decades. The preliminary estimate for 2009 escapement is approximately 1200 adults (including 412 brood removals). Of concern is the exploitation rate which climbed sharply from a low of approximately 30% in 2001 to 55-60% in 2003-2004. Monitoring of Nanaimo spring and summer chinook escapement has occurred less frequently. This year's escapement is estimated to be around 200 chinook which is at the low end of the range in recent years.

West Coast Vancouver Island Chinook

The status of WCVI origin chinook has remained low for several years. Those populations that are not enhanced have remained well below target or declined since major El Nino events in the mid 1990s. Populations in the SWVI area (e.g. Area 24 and southward) tend to be lower status than those populations in NWVI.

2009 salmon escapement estimates from extensively surveyed WCVI streams are preliminary. Observations indicate escapement to NWVI systems were at or above recent year averages whereas

SWVI systems were well below average. In particular, escapements to Clayoquot Sound (Area 24) and the Nahmint River (Area 23) remain very low. In two un-enhanced systems in Clayoquot Sound (Megin and Bedwell-Ursus) less than 70 spawners were observed. Similarly, in the Nahmint River less than 70 spawners were observed and only limited brood stock was collected to support the stock enhancement program there.

For WCVI hatchery stocks, the terminal return is defined as total catch (First Nation, recreational and commercial) in the near approach areas of the hatchery plus escapement (brood collection plus natural spawners). In these approach areas, catch is dominated by the hatchery stock (e.g. >95%), therefore, higher exploitation rates are permitted than in times and areas dominated by naturally produced WCVI chinook stocks.

The preliminary total terminal return of Stamp River/Robertson Creek hatchery chinook was approximately 34,500 adults, below the pre-season forecast of 57,000. The preliminary escapement through Stamp Falls was approximately 12,000 adult chinook (expected to increase slightly as data are reviewed). The total terminal return and escapement to the Conuma River hatchery system was approximately 25,000 and 8,600, respectively. The total terminal return and escapement to the Nitinat River hatchery system was approximately 7,000 and 6,000, respectively.

Johnstone Strait/Mainland Inlet Chinook

Currently only two systems are monitored consistently in Areas 12 and 13. The Nimpkish River is assessed using standardized swim surveys and stream walks by hatchery staff and an intensive mark-recapture program is carried out by Quinsam Hatchery to estimate escapement on the Campbell/Quinsam system. Other systems are covered using intermittent visual surveys.

Nimpkish River

Preliminary observations from the swim surveys indicate a continued low abundance of chinook to the Nimpkish Watershed, similar to recent years. At this time approximately 100% of the brood target has been obtained by the hatchery. Final estimates are not available at this time.

Campbell/Quinsam System

Lower than normal river levels in early fall, initially provided good conditions for the mark-recapture program, however, a series of rain events in November resulted in extremely high water on both rivers and disruptions to the program. The favourable river conditions of early October permitted installation of a floating fence on the Quinsam River (for brood stock capture) and the chinook target to be attained by the hatchery. Normal chinook migration timing was observed on both systems. Abundance estimates are not available at this time, however preliminary indications suggest the total return to be slightly less than that of 2008, but remaining above the historical average.

Southern BC Coho

Objectives and Overview

In 2009 the abundance forecast indicated that the status of Interior Fraser River (including Thompson River) coho remained critically low. The lower Fraser, Georgia Basin (east and west) and the Johnstone Strait coho management units were all forecast as either critically low or low status.

In 2009, Interior Fraser coho were a primary concern when implementing fisheries. Under the Abundance Based Management provisions in the Pacific Salmon Treaty, the US was limited to a maximum 10% exploitation on Interior Fraser coho. In Canada, the management objective for these coho was to limit the total mortality to a ceiling of 3% across all Canadian fisheries. The total exploitation on Interior Fraser coho was therefore limited to a maximum of 13%.

To ensure this limit was not exceeded in Canadian fisheries, retention of wild "unmarked" coho was not permitted in all recreational and commercial fisheries operating in areas of southern BC where Interior Fraser coho were known to be prevalent. Wild coho retention was permitted in some terminal areas along the west coast Vancouver Island (WCVI), in the Mainland Inlets, and in a small portion of upper Johnstone Strait, and Queen Charlotte Strait.

Table 19 Preliminary coho catch and release estimates of the recreational, First Nations (FSC, economic opportunity and ESSR), and commercial fisheries for 2009.

	Catch	**Release**
Recreational	117,320	178,551
First Nations	53,136	1,997
Commercial	934	40,283
Total	**171,390**	**220,831**

Coho catch and release information from all fisheries can be found in Table 31.

Recreational

Sport fisheries can be categorized as occurring in mixed stock areas where specific coho stocks (such as Interior Fraser River coho) could not be avoided and terminal areas where local stocks dominate the catch. The table below outlines the areas in Southern BC where these mixed stock fisheries occurred and the general regulations pertaining to them.

Table 20 Southern BC coho fishery regulations.

Mixed stock fishing area	Daily Limit (marked or unmarked)	Size Limit	Coho Season
WCVI offshore areas 121-127 and areas 21 and 26	2 marked	30 cm.	Jun 1 – Aug 31
WCVI offshore areas 121-127 and areas 21 and 26	4 marked	30 cm.	Sept 1 – Dec 31
WCVI inshore area 23,24,25 and 27	2	30 cm.	Jun 1 – Aug 31
WCVI inshore area ,23,25,and 27	4,	30 cm.	Sept 1 – Dec 31
WCVI inshore area 24	4, 2 may be wild	30cm	Sept 1 – Dec 31
Juan de Fuca: areas 19-20	2 marked	30 cm.	Jun 1 – Dec 31
Strait of Georgia: areas 13-19, 28, portions of 29, excluding some terminal areas and times.	2 marked	30 cm.	June 1 – Dec 31
Johnstone Strait – Queen Charlotte Strait: all areas	2 marked	30 cm.	June 1 -- Dec 31

The table below outlines coho catch and release information for recreational coho fisheries in Southern BC. The WCVI coho fisheries had a boundary in place distinguishing coho catch in the mixed-stock fishery (outside the coho boundary) and catch in the terminal area (inside the coho boundary).

Table 21 2009 recreational coho catch and release in Southern BC

Area	Coho Kept	Coho Released	Effort (Boat Trips)
WCVI – Outside Coho Boundary	40,952	85,962	18,900
WCVI – Inside Coho Boundary	48,181	24,441	55,901
Strait of Georgia (June – Sept)	521	3,221	58,963
Fraser River	7,633	9,045	NA
Juan de Fuca (Jan – Sept)	9,521	26,382	60,150
Johnstone Strait	10,512	29,500	NA

Mixed Stock Areas

In 2009, hatchery selective mark fisheries (SMF) fisheries in southern BC allowed hatchery coho retention starting June 1st in most areas.

Release of wild "unmarked" coho was required in all sport fisheries operating in areas of southern BC where Interior Fraser River coho were known to be prevalent, including the mixed stock areas of the WCVI (Statistical Areas 21-27, 121-127), Strait of Juan de Fuca (Statistical Areas 19-20), Strait of Georgia (Areas 14-19, 28, 29), and the majority of Johnstone Strait and Queen Charlotte Strait (Statistical Areas 11, 12 and 13). Some wild "unmarked" retention opportunities were provided in terminal areas of WCVI and Areas 11, 12 and 13 with catch limit, time and area constraints (Details in Pacific Region Integrated Fisheries Management Plan, Salmon Southern B.C. 2008). In addition, the use of barbless hooks was mandatory in all these areas.

West Coast Vancouver Island

In offshore and rearing areas off the WCVI, SMF regulations are in effect in order to protect weak coho stocks of concern, such as those originating from the Interior Fraser River. The daily limit is 2 marked coho (i.e. hatchery-origin coho with an adipose clip). For 2009, total catch in offshore areas was estimated at 40,952, about a three-fold increase from 2008 levels

Inside Areas: Strait of Georgia, Juan de

Recreational catch monitoring occurs year-round in portions of the Strait of Georgia but operates mainly from May-October. Coho catch, release, and mark rates are derived from two main sources; creel surveys and guide logbooks. The total coho catch in Strait of Georgia mixed stock and terminal areas was approximately –Strait of Georgia– 521, Juan de Fuca Strait– 9,521, Johnstone Strait– 10,512

Terminal Fishing Areas

West Coast Vancouver Island

In WCVI terminal fishing areas, retention of adipose clipped hatchery origin coho was permitted as well as retention of wild "unmarked" coho in some portions of inshore areas where WCVI origin stocks dominate (portions of Port San Juan (Area 20), Alberni Inlet and portions of Barkley Sound (Area 23), portions of Clayoquot Sound (Area 24), portions of Nootka Sound and Esperanza Inlet (Area 25), and portions of Quatsino Sound (Area 27). Where retention of wild coho was permitted, the seasonal daily limit was 2 coho after June 1st with the exception of portions of Alberni Inlet, Tlupana Inlet and Nitinat Lake (Tidal) where the bag limit was increased to 4 coho after August 1st. In 2009, the total coho catch from the inshore WCVI terminal area was approximately 48,181, almost a four-fold increase from 2008.

Strait of Georgia

Terminal coho SMF were implemented in most areas in the Strait of Georgia in 2009 where impacts on other species or stocks were not a concern. In some of these areas special management actions, including changes in daily limits or size limits, were implemented depending on the situation.

Non-Tidal Recreational Fisheries

Strait of Georgia

During 2009 there were limited non-tidal openings throughout the Strait of Georgia. No directed coho opportunities were permitted in Big Qualicum River.

Johnstone Strait

In Johnstone Strait, non-tidal openings for coho were initially available on the Campbell/Quinsam River from October 1st to December 31st where 4 coho were permitted, which included jacks. Other non-tidal opportunities were provided, but limited to where hatchery marked coho were available and limited to 2 per day.

West Coast Vancouver Island

During 2009 there was a non-tidal opening for the Somass/Stamp Rivers (Area 23-1) open from August 25, 2009 to December 31, 2009. The daily limit was four salmon per day. Anglers were allowed to retain two coho (marked or unmarked) and two chinook (of which only one may be greater than 77cm in length). The Somass/Stamp Rivers were not monitored by creel survey during 2009.

First Nations Fisheries

Somass Economic Opportunity Fishery

Tseshaht and Hupacasath Bands both signed a Fisheries Agreement for chinook, coho and chum. There were directed fishery on both coho and chum salmon in upper Alberni Inlet from mid September through October. The total coho catch in these fisheries was 737.

The remainder of the WCVI First Nations in fisheries statistical Area 21 to 26 reported a total coho catch of 2,626.

Lower Fraser

Total FSC, EO and ESSR catch in 2009 for the Lower Fraser River was 16,754 coho, the majority of which was caught in ESSR fisheries (15,807).

Strait of Georgia

Data are still being compiled on various First Nations catches in the Strait of Georgia, however, the total preliminary catch is estimated to be 5,065 coho, of which 2,458 was caught in FSC fisheries and 2,607 in ESSR fisheries. There were no economic opportunity fisheries.

Commercial Fisheries

In 2009, Southern BC commercial fisheries were generally regulated so that impacts on coho, and especially Interior Fraser coho stocks, were minimized. Terminal opportunities to retain coho by-catch during directed chinook and chum fisheries were available to Area B seine, Area D gill net and Area G Troll.

WCVI Terminal Area Coho

In 2009, commercial gill net and seine fisheries occurred in Alberni Inlet while only gill net fisheries occurred in Tlupana Inlet. These fisheries when targeting hatchery chinook returns encounter and retain coho by-catch. In 2009 the total coho by-catch in commercial net fisheries on the WCVI was 909.

In years of chum abundance, coho by-catch is also retained in targeted chum gill net fisheries on the WCVI in Fisheries Statistical Areas 23, 24 and 25. In 2009 because of low chum abundances there were no chum fisheries on the WCVI.

Area G troll fisheries were permitted to retain incidentally caught SHM coho in October 2008 and in any fisheries that would occur until January 2009 and from the middle of September until the end of September 2009. For the 2008/09 AABM chinook fishing periods, the estimated total coho retained was one and releases during this period were estimated at approximately 12,667.

Stock Status

Upper Fraser

Field programs to estimate escapements have just concluded, analysis is underway, and only very preliminary results are available. Early returns to the Interior Fraser River indicate an improvement over 2008 returns and likely a significant improvement over the 2006 parent brood escapements. Very preliminary data indicate returns to the entire Interior Fraser River may range between 20,000 and 30,000; however, preliminary estimates are not yet available for many systems, and near final estimates will not be available until late January or early February, as some field studies are not yet completed.

Lower Fraser

The Lower Fraser Area (LFA) can be divided into four sub-areas: lower Fraser River, Howe Sound/Squamish River, Burrard Inlet and Boundary Bay.

Lower Fraser River

Escapement studies are currently underway, and many populations have not reached peak spawning at the time of writing. Preliminary escapement estimates for the surveyed systems should be available by early February, 2010.

A hatchery coho indicator stock is provided by Inch Creek Hatchery. Adult escapement is assessed annually and marine survival and exploitation rates are calculated, these estimates are not yet available. Adult coho visual surveys are conducted for a number of systems within the lower Fraser River sub-area as part of multi-species assessments; however estimates are not yet available as the programs are not complete.

Howe Sound/Squamish River

Assessments for Howe Sound and Squamish River are incomplete at this time. Tenderfoot hatchery staff will be taking brood stock until February, 2010.

Burrard Inlet

An assessment of the returns to Capilano Hatchery is not yet complete, and therefore, the 2010 abundance and status of this stock group is not known at this time.

Boundary Bay

Community-run SEP projects contribute significantly to coho returns to this sub-area. The 2009 data will not be available until late February 2010.

Strait of Georgia

The observed 2008 marine survivals for hatchery Coho were similar to the previous year (0.3% - 0.7% hatchery) and lower for wild Coho (0.7%) These levels remain very low. The forecast models predicted continuing low levels of marine survival in 2009, 0.2% - 0.7% for hatchery stocks and 1.4% for wild stocks.

Hatchery Stocks

The 2009 coho escapement estimate to Puntledge River and Lang Creek were substantially higher than the previous year (2008) and the previous brood return (2006). Conversely, Qualicum River, and Goldstream Hatcheries saw similar escapements than the previous year and previous brood year.

Wild Stocks

There are two wild indicators in the Strait of Georgia, at Black Creek and Myrtle Creek.

Myrtle Creek

The Myrtle Creek escapement is estimated to be 25 adults which is much higher than last year (10) and similar to the previous brood return in 2006 (21). The fence count was hampered by several high water events however bypass coho were monitored throughout the event.

Black Creek

Creek conditions throughout September and half way through October were very dry with extremely low water levels. Several reports of coho holding in the approach waters/estuary indicated a significant burst of fish migration would occur as soon as some precipitation occurred. Adequate discharge due to an initial rainfall event that started on October 16th brought about the beginning escapement of adult coho to Black Creek. Two pulses of fish migration, one in the third week of October (16th-20th) and another in late October and early November (Oct 29th – Nov 6th) made up the bulk of adult coho escapement to Black Creek in 2009. Heavy rainfall beginning on the 29th of October and continuing until mid November caused water levels to rise to a point on Nov 6th where the fence was under water and remained that way until almost the end of the month. A total of 3,316 coho were enumerated through the fence; of those 1,053 (32%) were male, 1,531 (46%) were female, and 732 (22%) were jacks. The deadpitch program commenced on November 17th and recovered a total of 362 coho carcasses of which 231 had a floy tag number and/or opercular punch (therefore sampled at the fence) and 131 had neither a tag nor an opercular punch. Both fence enumeration and deadpitch programs have concluded for the year. Analysis of data is still in progress and a final escapement estimate is currently unavailable.

Overall, stock status of Coho in the Strait of Georgia continues to be very low. The observed Creel CPUE from the west coast of Vancouver Island indicated an increase in the number of Coho present in those waters. This was confirmed by the early escapement data from monitored systems. This population increase was likely due to an improvement in the marine survival however actual survival rates will not be determined until early 2010.

West Coast Vancouver Island

There are two indicators in WCVI, Robertson Creek Hatchery (RCH) and Carnation Creek. Both are located in DFO Statistical Area 23. In 2009, preliminary escapement to Robertson Creek Hatchery is estimated at about 69,000, which would suggest coho from the 2006 brood year experienced about an average survival rate. Escapement to the Carnation Creek indicator system was also above the long term average. Similarly, preliminary estimates of escapement to other WCVI systems suggest average to above average escapement. Although recent year WCVI coho escapements are about average, the overall abundance of WCVI coho has been low given the relatively limited harvest of these populations relative to historic periods. Therefore, the status of WCVI coho remains low to moderate at best.

Johnstone Strait and Mainland Inlet

The Keogh River plays an important role as the wild coho indicator stock for the Upper Johnstone Strait Area. Smolt production in 2008 was around 72,000, significantly higher than the long term average of 55,000. Preliminary indication from the resulting adult escapement in 2009 is that marine survival has improved relative to the last few years (~5-6% smolt to adult survival). Smolt production from the Keogh in 2009 of approximately 77,000 was again significantly higher than the long term average.

The marine survival indicator for Area 13 is the Quinsam River Hatchery. Early information from Quinsam indicated improved smolt to adult survival relative to the last few years.

Current extensive escapement reports are also indicating higher than expected returns of coho throughout Johnstone Strait and the Mainland Inlets. At this time it is still too early to provide an indication of stock status.

Johnstone Strait Chum

Objectives and Overview

The Johnstone Strait chum fisheries primarily target chum that spawn in Johnstone Strait, Strait of Georgia, and Fraser River areas. In order to improve the management of Johnstone Strait chum fisheries and to ensure sufficient escapements, a 20% fixed exploitation rate strategy, independent of run size, was implemented in 2002 for Study Area Chum in Johnstone Strait. This year constituted the 7th year of the fixed exploitation rate harvest strategy. Of the 20% exploitation rate, 16% is allocated to the commercial sector; the remaining 4% is set aside for the First Nations and recreational harvesters, and to provide a buffer to the commercial exploitation. Since the implementation of this management strategy, annual fisheries have been planned well in advance of the chum return.

For commercial fisheries, the pre-season fishing schedule was developed based on expectation of effort, exploitation levels by gear group, and historical run timing (peak estimated as October 9th). The fishing schedule was developed to achieve the commercial allocation sharing guidelines of 77% for seine, 17% for gillnet and 6% for troll. In-season adjustments to the fishing plan are made in-season if warranted.

In 2009, the Area B (seine) and Area D (gill net) fisheries did not opt to participate in chum demonstration fisheries; full derby fisheries were held for both gear types.

The Area H (troll) fleet opted to participate in an effort based ITQ demonstration fishery for the second year (2008 and 2009). A total number of 325 boat-days were modeled to correspond to the troll share of the harvest rate described above, and two time periods were defined to spread the catch over a 36 day period. Each Area H licence holder was assigned 3 boat-days in period 1 and 2 boat-days in period 2. Boat-days from each period could be transferred to other licence holders within each period but not between periods. A maximum of one third of the total number of boat days in period 1 could be carried over to fishing period 2, provided that day was not fished.

Data are still being compiled and analyzed to determine the final harvest rate estimates.

Chum catch and release information from all fisheries can be found in Table 32.

First Nations

First Nations fisheries for chum were not restricted. The preliminary estimated catch by First Nations in the Johnstone Strait area is estimated at 12,341 chum salmon.

Marine Recreational

The marine recreational daily limits for chum are 4 per day and a possession limit of 8. The recreational catch in Johnstone Strait, Areas 12 and 13, was estimated at 109 chum. This estimate represents catch from July through September from a directed creel survey. This year there was no creel survey in the month of October where the majority of chum catch occurs in Area 13. The catch in 2008 was estimated at 2,892 chum.

Non-Tidal Recreational

There were no directed chum fisheries in non-tidal waters in the Johnstone Strait area.

Commercial

Seine, gillnet and troll fisheries were conducted in Johnstone Strait between September 28 and November 5. The total commercial chum catch from Johnstone Strait is estimated at 510,708 pieces. A description of each fishery is provided below.

There was a general requirement to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks in all commercial fisheries. Catch monitoring included requirements for catch reporting and mandatory logbooks.

Area B Seine

In 2009, there were two commercial seine openings for chum salmon in portions of Areas 12 and 13. The first opening took place on October 5th for 12 hrs, the second on October 19th for 10 hrs. The total Area B catch is estimated at 316,185 chum.

Area D Gillnet

In 2009, there were three commercial gillnet openings for chum salmon in portions of Areas 12 and 13. The first opening took place from 1600h September 30 to 0900h October 2; the second opening was from 1600h October 8 to 0900h October 10; and, the third opening was from 1600h October 22 to 1700h October 24. The total Area D catch is estimated at 126,625 chum.

Area H Troll

In 2009 there were two commercial troll fishing periods. Period 1 of the effort-based troll ITQ fishery opened on September 28th and closed on October 11th, although it was closed for a 24 hr period on October 5 during the commercial seine opening. A maximum of 40 vessels participated in the opening and the total catch was 29,394 chum. Period two opened on October 13th and ended on November 5th, although it was closed for a 24 hr period on October 19th during the commercial seine opening. A maximum of 37 vessels participated in the second opening and the total catch was 38,504. In total, 349 boat days were fished with a total catch of 67,898 chum.

Table 22 Johntone Strait Commercial Catch and By Date and Geary Type
Johnstone Strait Fisheries (Areas 12 and
13)

Fishery Date	Gear type	Effort	Catch
Oct 5	B - SN	102	170,200
Oct 19	B - SN	105	145,985
Sept 30 to Oct 2	D- GN	130	27,900
Oct 8 to 10	D- GN	173	63,425
Oct 22 to 24	D- GN	111	35,300
Sept 28 to Oct 11	H-TR	2-31	29,394
Oct 13 to Nov 5	H-TR	2-26	38,504

Table 23 Johnstone Strait Fisheries (Area 12 and 13)

Gear Type	Total Catch	% of catch	J.S. Allocation Plan
Area B	316,185	69.1%	77%
Area D	126,625	24.8%	17%
Area H	67,898	13.3%	6%
Total Catch:	**510,708**		

Nimpkish River

Conditions for monitoring chum returns to the Nimpkish watershed have been hampered by heavy rain events during November. Chum return estimates to the Nimpkish River are incomplete at this time but appear to be low. There was no chum harvest other than removals for Nimpkish River Hatchery brood stock.

Stock Status

Mixed Stocks

The pre-season expectation for Study Area chums suggested average to below average returns to the area. The main component to the return was expected to be the Fraser River stocks, although both Fraser and non-Fraser components of the return were originating from below average brood returns in 2005.

The Johnstone Strait test-fishery provided timing and spread information of the 2009 return which is important for assessing the performance of the 20% harvest strategy implemented in the Johnstone Strait fisheries. Age composition derived from the test-fishery samples demonstrated a dominant 4-year old brood component as expected. Preliminary information on escapements and catches to date suggest returns were average to below average for Inside Study Area chum stocks. In-season information is still being collected and analyzed in regards to total stock size.

Terminal Returns

Most summer run chum returns in Area 12 were varied, with stronger than expected returns to the Viner and stable returns to other systems (Ahta and Ahnuhati Rivers). Summer chum returns to the Orford River (Bute Inlet) were well below brood returns, as has been the case in recent years.

It is still too early to assess the status of fall run chum in the Johnstone Strait Area. Preliminary information indicates returns are average to below average for a variety of systems within the area. Initial observations on the Nimpkish River, under poor assessment conditions, indicate some abundance of returning chum. The assessment of the Nimpkish system will continue into late December.

Fraser River Chum

Objectives and Overview

The escapement objective for Fraser River chum is 800,000. Conservation measures for co-migrating stocks of concern delays in-river chum fisheries from the peak of the run (mid-October) to the end of the run (late October – early November). Chum escapements to the Fraser have been estimated to be above the escapement objective for return years 1998 to 2008, with the exception of the 2000 return. Fraser River chum salmon spawning locations are predominately located in the Fraser Valley downsteam of Hope, BC; no spawning locations have been identified upstream of Hells Gate. Small numbers of short fishery openings have prevented adverse impacts on local chum populations.

Chum catch and release information from all fisheries can be found in Table 32.

General Overview of Fisheries

Fraser River chum are harvested in Johnstone Strait, in the Strait of Georgia, in Juan de Fuca Strait, in US waters of 7 and 7A, as well as in the Fraser River.

Fraser River chum returns coincide with Interior Fraser coho and Interior Fraser steelhead runs. Therefore, commercial Gillnet Chum fisheries in the Fraser River are severely limited by conservation concerns for Interior Fraser (including Thompson River) coho and Interior Fraser steelhead.

First Nations

FSC gill-net fisheries commenced October 10 (below Mission) following closures to protect co-migrating Interior Fraser coho. The estimated catch from all fisheries (FSC and economic opportunity) below Sawmill Creek to the end of November is 81,275. The FSC catch was 13,118 and the economic opportunity catch was 68,157. ESSR harvests are ongoing for 2009. As of December 11th there have been 8,458 chum reported harvested through ESSR fisheries.

Recreational

In 2009, the major Fraser River watershed recreational salmon fisheries impacting chum salmon were assessed, including significant salmon fisheries occurring in the lower Fraser River mainstem and the Chilliwack River (a tributary to the Fraser River in the lower Fraser Valley). Two minor recreational fisheries that occurred on the Harrison River and the Nicomen Slough/Norrish Creek drainage were also assessed (both are tributaries to the Fraser River in the lower Fraser Valley).

The lower Fraser River mainstem recreational fishery was open to the retention of chum salmon from May to December with a bag limit of 2 chum per angler per day. In 2009, this mainstem fishery was assessed from May 1st to October 15th; preliminary estimates of 44 and 890 chum were kept and released, respectively. The Chilliwack River recreational fishery was open to the retention of chum salmon from July to March. The Chilliwack River fishery was assessed from September 15th to November 15th in 2009; preliminary estimates of 2,404 and 11,238 chum were kept and released, respectively.

The Harrison River recreational fishery was open to the retention of chum salmon year round. In 2009, the assessment of this fishery began on September 1st and was ongoing at the time of this report. In-season estimates to Nov.15th are 742 and 8,839 chum kept and released, respectively. Although historically not directed at chum, Nicomen Slough was open to the retention of chum salmon year round. The Nicomen Slough/Norrish Creek fishery was assessed from October 10th to November 30th in 2009. In-season estimates to November 15th of 10 and 1,116 chum were kept and released, respectively.

In total, for assessed recreational fisheries occurring in the Fraser River in 2009, preliminary estimates of 3,200 and 22,083 chum were kept and released, respectively.

Commercial

Chum test fishing began on September 1st and was conducted every alternate day until October 21st when chinook test fishing was terminated and chum test fishing then continued on a daily basis. Chum catches in the 6.75" chum test net from September 1st to November 23rd, representing 56 test fishing days, totalled 7,003 chum.

Commercial fisheries in the lower Fraser River (below Mission) were closed from September 8th to October 9th to protect Interior Fraser coho. Further restrictions on commercial fisheries were in place until late October to protect Interior Fraser steelhead. Due to these constraints, only one Area E (gill net) commercial opening took place in Area 29 during the 2009 fishing season. This opening occurred on October 27th for 24 hours in portions of Area 29. The total catch from this opening was estimated at 42,000.

Stock Status

Terminal run-size to the Fraser River (at Albion) is estimated in-season using a Bayesian model (CSAS Res.Doc. 2000/159, Gazey and Palermo) and Albion test fishing catch per unit effort data (CPUE). In 2009, a terminal run-size of 1.725 million was estimated using Albion CPUE data to November 3rd.

Fraser River chum return to many spawning locations in the lower Fraser River. Spawning escapement to five of the largest chum producing populations and to a small number of lesser producing populations is assessed annually. Projects assessing the escapements to these systems in 2009 are ongoing and therefore estimates are currently not available.

While there have been substantial returns in recent years (e.g. 1998) concern has been raised over the recent timing of the run; the late run component appears to be truncated compared to historical run distribution. In the past, chum returned to the Fraser River and its tributaries well into December. The run is now predominately over by mid-late November. Additionally, although estimated escapement to the Fraser continues to be greater than the 800,000 objective (e.g. the 2008 preliminary escapement was estimated at approx. 1M); estimated escapement over the last 10 years is trending downwards. Whether these observations are the result of fishing practices, habitat changes to the spawning areas that were used by late returning fish (e.g. mainstem spawning areas), freshwater production changes, marine environment affects or other currently unidentified factors, has yet to be determined.

Strait of Georgia Chum

Strait of Georgia chum fisheries consist of terminal opportunities for chum returning to their natal spawning streams. Many of the potential terminal fishing areas have enhancement facilities and/or spawning channels associated with the rivers. Terminal fishery strategies consist of monitoring and assessing stocks (escapement and returning abundance) with the objective of ensuring adequate escapement and providing harvest opportunities where possible. Stock assessments may include test fisheries, escapement enumeration, and over flights. In some areas where stocks receive considerable enhancement or where stocks have above average productivity, limited fishing may occur prior to major escapement occurring.

Area 14

This fishery is directed at the enhanced stocks of three systems: Puntledge, Qualicum and Little Qualicum Rivers. The Qualicum River is often referred to as the 'big' Qualicum River, to better distinguish it from the Little Qualicum River. Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. The returning Area 14 chum abundance is forecasted pre-season using brood escapement, average survival and age composition. In-season run strength is assessed from any early catches, visual observations at river estuaries and by escapement counts to the three river systems. The escapement goals for the three river systems are 60,000 for Puntledge River, 130,000 for Little Qualicum River, and 100,000 for Qualicum River, adding up to an overall escapement goal of 290,000 chum not including enhancement facility requirements (about 10,000 chum bringing the total escapement goal to 300,000).

This fishery has a specific harvest strategy, implemented since 1981. The strategy consists of limited early harvest prior to escapement occurring. The allowable early chum harvest is calculated from 65% of the predicted surplus (terminal return run size minus escapement (300,000) and buffer 100,000. The buffer safeguards against errors in forecast stock abundance. The surplus within the 100,000 buffer and remaining 35% of the surplus may be harvested provided that escapement targets have been achieved. Since 2002, Puntledge River stock returns have been above average resulting in terminal fisheries focusing on this slightly earlier timed stock. This fishery continued in 2009.

Area 16

This fishery targets wild chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka Rivers. The overall escapement goal for Jervis Inlet streams is 110,000. These terminal fisheries occur when the individual or combined escapement goals have been assured. Fishing opportunities do not occur on a regular basis. There were no fisheries in Area 16 in 2009

Area 17

This fishery is a terminal fishery targeting Nanaimo River stocks. The Nanaimo River chum stocks are supplemented by the Nanaimo River Hatchery (supplementation is on a sliding scale), where increased enhancement occurs during poor escapement years. Escapements fluctuate annually and fishery openings are planned in-season based on escapement estimates. The overall escapement goal for the Nanaimo River is 60,000.

Area 18

This fishery is directed primarily at Cowichan River stocks, however Goldstream chum are also harvested. Fishery openings in mid to late November are limited to Satellite Channel in order to minimize impacts on the earlier timed Goldstream stocks. Chemainus River stocks could also be impacted if the fisheries are earlier in November, but likely to a lesser extent.

Fishery openings are planned in-season based on escapement estimates from a DIDSON counter and information from a test fishery. Management is also guided by advice from the Cowichan Fisheries Roundtable (the Roundtable) and the Mid Vancouver Island (MVI) Chum Subcommittee. The overall escapement goal for the Cowichan River is currently 140,000 Chum counted by the DIDSON counter.

Area 19

This fishery is directed primarily at Goldstream River stocks although some Cowichan River Chum are also harvested. Fishery openings set for mid to late November are limited to the portion of Saanich Inlet (Sub area 19-8) which is outside or to the north of Squally Reach. This area restriction is implemented to minimize impact on Goldstream chinook and coho stocks.

Fisheries are planned in-season based on escapement estimates and a test fishery. Area 19 falls under the same management regime as Area 18. The overall escapement goal for the Goldstream River is 15,000.

Chum catch and release information from all fisheries can be found in Table 32.

First Nations

The preliminary estimated catch by First Nations in the Strait of Georgia is estimated to be approximately 5,478 chum; additional catch data are currently being compiled. In addition, there was an ESSR fishery at the Puntledge hatchery where approximately 2,856 chum were harvested.

Recreational

The recreational creel survey extends from the marine area of Discovery Passage, (outside of Campbell River) to Saanich Inlet. The majority of recreational effort directed at chum salmon occurs in the Discovery Passage area. The total creel catch estimate for the recreational fleet in the Strait of Georgia area is approximately 1,000 chum, most of which were caught in Area 13 (reported in the tables as Johnstone Strait) during the month of October.

Tidal recreational fisheries are subject to the normal daily and possession limits (daily limit four per day/possession eight) and are open throughout the area.

Occasionally recreational in-river fisheries occur where surpluses or target escapements will be met. These fisheries are almost exclusively where enhancement facilities are present.

Commercial

Strait of Georgia chum are managed as a component of "mixed-stock harvest strategy" chum for Johnstone Strait and the northern Strait of Georgia. Fishing opportunities are guided by commercial allocation targets for chum salmon in the south coast. Management is guided by advice from the MVI Chum Subcommittee.

Strait of Georgia commercial chum fisheries for seine, gillnet and troll were conducted between October 13th and November 16th. The total commercial chum catch from Strait of Georgia is estimated at 59,116 pieces (see table 24 below). A description of each fishery is provided below.

Area 14

Area D gill net openings occurred on October 13th to 16th, October 19th to 21st, October 22nd to 23rd, October 29 to November 1st and November 3rd to 5th in upper Area 14 (Puntledge area). There were no openings in lower Area 14 (Qualicum and Little Qualicum areas) due to low escapements. There was a total of 11 days fished for a catch of 46,609 chum. The troll fishery opened from October 13th to November 6th in the same area as for gill net; there was almost no effort nor catch in this fishery. An Area B limited opportunity seine fishery occurred on October 28 to November 1st, and on November 3rd to 5th with a total catch of approximately 2,030 chum.

Area 16 – Jervis Inlet

No commercial fisheries occurred in Jervis Inlet as no surplus was identified.

Area 17 – Nanaimo

Two gill net openings occurred for 48 hours on November 1st and November 7th, with a total catch of 6,731 chum.

Area 18 – Cowichan

There were 3 gill net openings in Area 18, one on November 10th, 11th and the 16th for 12 hours. The total estimated catch is approximately 3,731 chum.

Area 19 – Goldstream

No commercial fisheries occurred in the Goldstream area as there was no surplus available for commercial fisheries.

Table 24 Strait of Georgia Commercial Chum Catch by Date and Gear Type

Fishery Date	Gear type	PFMA	Effort	Catch
Oct. 13-16	D	14	69	19,760
Oct. 13 - Nov. 5	H	14	1	15
Oct. 19-21	D	14	99	19,654
Oct. 22-23	D	14	20	574
Oct. 29-Nov. 1	D	14	51	4,642
Oct. 28	B	14	3	1,830
Oct. 29-Nov.1	B	14	0	0
Nov. 1-3	E	17	51	4,603
Nov. 3-4	B	14	1	200
Nov. 3-5	D	14	32	1,979
Nov. 7-9	E	17	43	2,128
Nov. 10	E	18	42	2,110
Nov. 11	E	18	25	1,216
Nov. 16	E	18	15	405

Stock Status

A below average chum return to the Strait of Georgia was forecast for 2009. The forecast was based on below average brood year escapements (primarily 2005) and anticipated average to below average survival. Historically however, chum returns have been highly variable relative to brood year escapements. Conditions for returning chum migration and spawning were good with water flows ample for most of the season. Spawning escapements continue to be monitored and are currently being compiled. To date, returns have been variable with some areas achieving their escapement goal while others are below target (Table 25), although estimates are preliminary and subject to change.

Two marine test-fisheries were conducted, one off the Cowichan River and the other adjacent to the Goldstream River. The Cowichan seine test-fishery commenced on October 27th and continued until November 30th for a total of 6 fishing days. Test catches totaled 1,054 chum and 20 coho. The Goldstream River (Saanich Inlet) seine test-fishery commenced on October 28th and continued until December 1st for a total of 6 days. Test catches totaled 311 chum and 0 coho. Each test fishing day generally consists of six sets; all captured fish were released.

Spawning escapements continue to be monitored and are currently being compiled.

Table 25 Strait of Georgia Preliminary Spawning Escapements

River System	Preliminary Escapement	Escapement Goal
Puntledge	76,000	60,000
Little Qualicum	37,000	130,000
Qualicum	36,500	100,000
Nanaimo	58,000	60,000
Cowichan	140,000	140,000
Goldstream	18,000	15,000

West Coast Vancouver Island Chum

Objectives and Overview

Commercial chum salmon fisheries occur from late September to early November in WCVI fishing areas in most years. The majority of chum fishing on WCVI takes place adjacent to Nitinat Lake (Area 21), and in Nootka Sound and Esperanza Inlet (Area 25). Commercial fisheries target both wild chum stocks returning to local streams, and enhanced chum stocks from Nitinat and Conuma hatcheries.

With the exception of Nitinat and Tlupana Inlet where hatchery stocks dominate, WCVI chum fisheries are managed to a 20% harvest rate. Fishery managers consider run timing, fishing effort, and fleet distribution when implementing in-season management measures. In-season management measures, such as limiting fishing effort to one or two days per week, are implemented to ensure that target harvest rate objectives are not exceeded.

Both the Area D and Area E commercial gillnet fleets, and the Area B commercial seine fleet target WCVI chum. Seine opportunities generally occur once surplus to escapement/brood requirements have been identified (Nitinat and Conuma).

There were no commercial net fisheries on WCVI in 2009 due to very low abundance of most wild and hatchery stocks. Since 2004, there were limited-fleet gillnet fisheries in both Esperanza Inlet (Area 25) and Barkley Sound (Area 23). A limited-fleet assessment fishery was initiated for Clayoquot Sound (Area 24) in 2007 and operated again in 2008.

First Nations FSC fisheries remain a priority, and primarily occur in terminal areas. FSC fishing effort and catch was approximately 1,700 for WCVI in 2009. An ESSR fishery, operated by the Ditidaht First Nation, took place at Nitinat Lake targeting hatchery surplus production.

In-river recreational fisheries generally have low effort, but recently effort has increased in some terminal area rivers (i.e. Nitinat River). Directed effort and catch of chum in recreational marine fisheries off WCVI is relatively low.

Chum catch and release information from all fisheries can be found in Table 32.

First Nations

The Ditidaht First Nation conducts FSC and ESSR fisheries in Nitinat Lake and at Nitinat hatchery. In 2009 the FSC chum harvest was 900 and ESSR chum harvest was 14,491.

Tseshaht and Hupacasath First Nations signed an Economic Opportunity Fisheries Agreement for chinook, coho and chum. Combined harvest was 1,332 chum during directed FSC chum and coho fisheries.

Recreational

The WCVI recreational fishery is open year-round with a limit of four (4) per day. WCVI recreational anglers kept approximately 87 chum during the 2009 WCVI sport fishery.

Commercial

Nitinat

There was no commercial fishery in 2009 due to lower than expected chum abundance. The Nitinat commercial chum fishery is typically the largest on the west coast and targets returning Nitinat River hatchery stocks. The fishing period is generally October 1st to November 15th. The fishery is managed to achieve a minimum escapement target of 225,000 and maximum escapement target of 325,000 chum salmon. The commercial TAC is based on the pre-season forecast.

This fishery has provided opportunities for both seine and gill net fleets. Gill net and seine fishing opportunities are dependent on reaching established in-lake escapement milestones by specific dates. Fleet size has varied over the past 15 years, largely due to pre-season forecasts and fish value. The size of the gill net fleet in the 1990s ranged as high as 240 vessels. From 2004 to 2008 the gill net fleet size fluctuated between 30 and 90 vessels. The seine fleet size typically varies from 20 to 100 vessels.

In-season abundance observations by a test-fishing vessel, by First Nations collecting broodstock for Nitinat hatchery, and by the hatchery staff counting adult chum in Nitinat River concurred on a maximum return of approximately 85,000 chum. No commercial harvest opportunity was provided at this run size. Bi-weekly calls were held with industry representatives to update on test-fishing results.

Areas 23, 24 and 25 Chum Fisheries

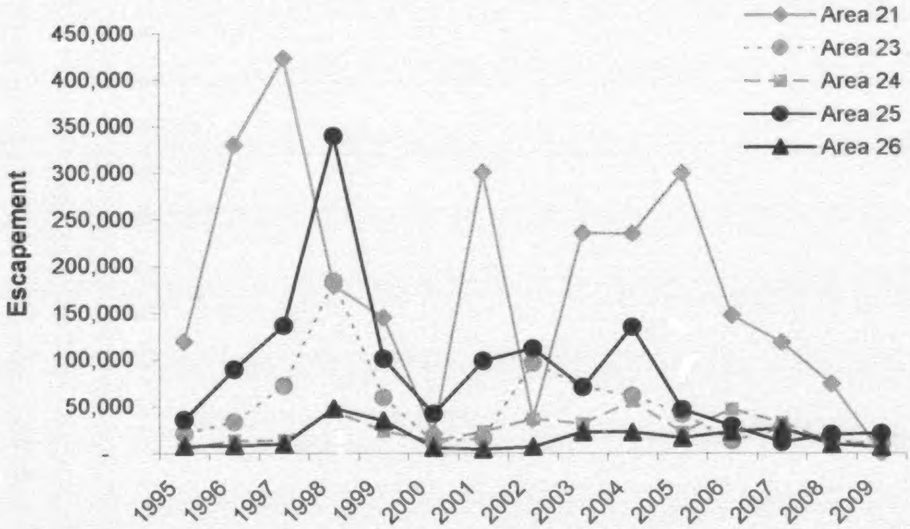
Commercial chum fisheries in Areas 23, 24 and 25 are typically managed using weekly in-season effort estimates. This harvest rate approach is designed to maintain a harvest rate of 20% or less on all stocks.

In 2009, the Department met with Area D advisors to discuss the probability of no gill net openings in 2009 on WCVI chum stocks due to low predicted abundance. Additional funds were provided to the Charter Patrol in Area 25 to increase observations of escapement in all known chum streams in Nootka Sound and Esperanza and Muchalat Inlets. The Department's Stock Assessment staff and contractors provided escapement counts for chum in Areas 23, 24 and 25. Escapements in most systems were lower than predicted. There was an insufficient abundance of Conuma River chum to trigger a gill net fishery in Tlupana Inlet.

Stock Status

All salmon escapement estimates from extensively surveyed WCVI streams are preliminary. Peak live plus dead observations indicate escapement of chum to most natural systems was similar in 2009, relative to 2008, in the WCVI conservation unit (CU). Overall, preliminary return estimates across PFMAs were only 20 to 40% of long term (1995 – 2008) average returns. Similarly, the Nitinat hatchery (Area 21/22) total return is currently estimated at about 85,000, which is well below average, and the 2008 return of 130,000. Pending further analysis of catch composition and escapement data, the status of chum returns in 2009 to WCVI populations is low to very low across the WCVI CU. Low returns were influenced by poor returns of age 4 and 5 fish, resulting from poor survivals from the 2004 and 2005 sea entry years.

Figure 8 Escapement of WCVI Chum Stocks, by PFMA and Return Year (1995-2009)



Note: Johnstone Strait includes Areas 11-13

WCVI includes Areas 21-27 and 121 to 127

Strait of Georgia includes 14-18 (and 19A which has zero catch) and Areas 28, 29 marine only.

Juan de Fuca includes Area 19 and 20

Table 26 Catches in Canadian Treaty Limit Fisheries, 1995 to 2009 (Preliminary).

Fisheries/Stocks	Species	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995
Stikine River (all gears)	Sockeye Coho Chinook -ig Chinook -jk	48,049 5,061 2,330 714	33,614 2,398 7,860 1,067	59,237 47 10,576 1,735	101,209 72 15,776 2,078	85,890 276 18,997 2,177	84,866 275 3,857 2,574	58,784 190 1,396 1,052	17,294 82 1,362 578	25,600 233 1,480 103	27,468 301 3,086 628	38,055 181 2,916 1,264	43,803 726 2,164 423	65,559 401 4,483 286	74,281 1,404 2,471 421	53,467 3,418 1,646 860
Taku River (commercial gillnet)	Sockeye Coho Chinook -lg Chinook -jk	11,057 5,649 7,031 1,183	19,445 4,866 1,184 330	16,564 5,399 862 337	21,093 9,180 7,312 198	21,932 6,860 7,534 821	19,860 5,954 2,074 334	32,730 3,168 1,894 547	31,053 3,082 1,561 291	47,660 2,568 1,458 118	28,009 4,395 1,576 87	20,681 4,416 908 257	19,038 5,090 1,107 227	24,003 2,594 2,731 84	41,665 5,028 3,331 144	32,640 13,629 1,577 298
Areas 3 (1-4)* (commercial net)	Pink	404,460	8,330	1,740,270	228,378	878,552	402,459	667,103	876,631	473,318	127,000	2,162,280	61,000	329,000	987,000	2,613,000
Area 1 (commercial troll)	Pink	60,402	29,295	61,276	34,854	39,430	27,751	98,347	41,418	175,000	28,295	25,000	0	261,000	732,000	1,284,000
North Coast** (troll + sport)	Chinook	109,470 75,470+ 34,000	95,647 52,147+ 43,500	144,235 83,235 + 61,000	215,985 151,485 + 64,500	243,606 174,806 + 68,800	241,508 167,508 + 74,000	191,657 137,357 + 54,300	150,137 103,037 + 47,100	43,500	32,048	70,701	144,650	145,568	26,900	119,100
West Coast Vancouver Island (troll + sport + FN)	Chinook	125,488 53,191+ 68,775+ 3,381	143,81789,704 + 50,319+ 3794	139,150 87,921 + 46,229 + 5,000	145,970 103,978 + 36,992 + 5,000	195,791 143,614 + 52,177	210,875 168,837+ 42,038	179,706 152,677 + 27,029	165,824 134,308+ 31,516	102,266 78,302 + 23,964	89,139 64,216 + 24,923	28,540 6,906+ 21,634	10,855 6,678+ 4,177	59,796 53,396+ 6,400	3677 4+ 3,673	86,230 81,258+ 4,972
Fraser River Canadian Commercial Catch	Sockeye Pink	0 1,442,840	16,942 0	0 333,300	4,633,623 68,325	137,000 338,000	1,993,800 0	1,042,986 1,149,189	2,182,700 0	295,000 579,000	953,000 0	54,000 3,000	1,295,000 0	8,737,000 3,660,000	1,019,000 0	903,000 3,777,000
Fraser River U.S. Commercial Catch	Sockeye Pink	0 2,726,230	49,800 0	3,900 377,600	701,300 0	0 0	192,200 0	244,000 773,000	434,600 0	240,000 427,000	494,000 0	41,000 3,000	707,000 0	1,578,000 1,565,000	257,000 0	415,000 1,919,000
West Coast Vancouver Island (commercial troll)	Coho	0	369	1,424	2,399	5,989	0	0	0	0	0	0	0	0	761,000	1,345,000
Johnstone Strait (clockwork catch)***	Chum	510,708	298,931	494,944	800,363	787,226	1,089,100	1,026,029	700,000	236,000	161,000	41,411	1,820,000	104,593	101,971	269,000

*AREA 5-11 CATCHES INCLUDED PRIOR TO 1995 AND EXCLUDED FROM 1995-1998 INCLUSIVE. NOT PART OF 1999 ANNEX IV PROVISIONS.

** NORTH COAST CATCH EXCLUDES TERMINAL EXCLUSION CATCHES OF 6,000 ('91), 6,100 ('92), 7,400 ('93), 6,400 ('94), 1,702 ('95), 16,000 ('96), 5,943 ('97), and 2,182 in 1998. NO TERMINAL EXCLUSION IN THE 1999 AGREEMENT - COVERED UNDER THE AABM ARRANGEMENT; CENTRAL COAST AREAS NOT PART OF 1999 ANNEX IV PROVISIONS.

*** CANADIAN CATCH INCLUDES COMMERCIAL, FSC AND TEST-FISH CATCHES IN AREAS 11-13 FOR 1991-94 INCLUSIVE, AND IN AREAS 12-13 FOR 1995 TO 2004 INCLUSIVE. 2002-PRESENT, CATCHES FROM FISHERIES MANAGED TO FIXED HARVEST RATE OF 20%.

NOTE 1: WCVI CHINOOK CATCHES FROM 1995-1998 ARE REPORTED BY CALENDAR YEAR; CATCHES FROM 2008-1999 ARE REPORTED BY CHINOOK YEAR (OCT-SEPT).

NOTE 2: 1999 CATCHES ARE REPORTED ACCORDING TO FISHERIES/STOCKS UNDER THE 1999 ANNEX IV PROVISIONS.

Table 27 Preliminary 2009 South Coast Sockeye Catch by Fishery and Area

SOCKEYE

Fishery	Gear	Fishery (Area)	Numbers		
			Non-Fraser Kept	Fraser Kept	All stocks Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	0	0	14
	Area H Troll	Mainland Inlet Pinks (12)	0	0	0
	Area H Troll	MVI Chum (14)	0	0	0
	Area H Troll	Fraser Chum (29)	0	0	0
	Area H Troll	JST Chum (12,13)	0	0	2
	Area H Troll	Fraser Pink (13,18)	0	0	364
	Area H Troll	Fraser Pink (29)	0	0	0
	Area B Seine	Somass Sockeye (23)	15,039	0	0
	Area B Seine	Somass Chinook (23)	0	0	4,841
	Area B Seine	Mainland Inlet Pinks (12)	0	0	0
	Area B Seine	JST Chum (12,13)	0	0	1
	Area B Seine	MVI Chum (18)	0	0	0
	Area B Seine	Fraser Pink (12,13)	0	13	9,978
	Area B Seine	Fraser Pink (29)	0	0	34
	Area D Gillnet	Somass Sockeye (23)	9,213	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0	0
	Area D Gillnet	Somass Chinook (23)	0	0	69
	Area D Gillnet	Mainland Inlet Pinks (12)	0	0	11
	Area D Gillnet	JST Chum (12,13)	0	0	0
	Area D Gillnet	MVI Chum (14)	0	0	0
	Area E Gillnet	Fraser Chum (29)	1	0	5
	Area E Gillnet	MVI Chum (17/18)	0	0	0
Total Commercial Catch			**24,253**	**13**	**15,319**
Recreational	Sport	Juan de Fuca (19,20)	-	152	1,091
	Sport	Strait of Georgia (14-18,28,29)	-	0	1,095
	Sport	Johnstone Strait (11-13)	-	49	367
	Sport	WCVI - Inside (21-27)	56,500	-	NA
	Sport	Fraser River	0	29	21,213
Total Recreational Catch			**56,500**	**230**	**23,766**
First Nations FSC		Johnstone Strait	-	10,124	0
		Strait of Georgia	475	20	0
		WCVI	77,547	91	0
		Fraser River	-	59,873	1,315
Total First Nations FSC Catch			**78,022**	**70,108**	**1,315**
First Nations EO		Johnstone Strait	-	-	-
		Strait of Georgia	-	-	-
		WCVI	0	0	0
		Fraser River	-	44	244
Total First Nations EO Catch			-	**44**	**244**
TOTAL - ALL FISHERIES			**158,775**	**70,395**	**40,644**

Table 28 Preliminary 2009 South Coast Pink Catch by Fishery and Area

PINK

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	98	112
	Area H Troll	Mainland Inlet Pinks (12)	0	0
	Area H Troll	MVI Chum (14)	0	0
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	1	8
	Area H Troll	Fraser Pink (13,18)*	16,728	0
	Area H Troll	Fraser Pink (29)*	0	19
	Area B Seine	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	0	0
	Area B Seine	Mainland Inlet Pinks (12)	0	0
	Area B Seine	JST Chum (12,13)	3	0
	Area B Seine	MVI Chum (18)	0	0
	Area B Seine	Fraser Pink (12,13)*	1,295,095	53
	Area B Seine	Fraser Pink (29)*	98,461	0
	Area D Gillnet	Barkley Sockeye (23)	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	Somass Chinook (23)	0	0
	Area D Gillnet	Mainland Inlet Pinks (12)	746	0
	Area D Gillnet	JST Chum (12,13)	7	4
	Area D Gillnet	MVI Chum (14)	0	0
	Area E Gillnet	Fraser Chum (29)	1	73
	Area E Gillnet	MVI Chum (17/18)	0	0
Total Commercial Catch			**1,411,140**	**269**
Recreational	Sport	Juan de Fuca (19,20)	50,917	15,560
	Sport	Strait of Georgia (14-18,28,29)	2,595	1,093
	Sport	Johnstone Strait (11-13)	38,897	17,118
	Sport	WCVI (21-27, 121-127)	924	738
	Sport	Fraser River	66,093	272,189
Total Recreational Catch			**159,427**	**306,698**
First Nations FSC		Johnstone Strait	22,501	0
		Strait of Georgia	211	0
		WCVI	133	0
		Fraser River	1,893	217
Total First Nations FSC Catch			**24,738**	**217**
First Nations EO		Johnstone Strait	-	-
		Strait of Georgia	-	-
		WCVI	-	-
		Fraser River	512,185	61,265
Total First Nations EO Catch			**512,185**	**61,265**
First Nations ESSR		Johnstone Strait	-	-
		Strait of Georgia	-	-
		WCVI	-	-
		Fraser River	12,312	0
Total First Nations ESSR Catch			**12,312**	**0**
TOTAL - ALL FISHERIES			**2,119,802**	**368,449**

* Note: includes non-Fraser pink catch

Table 29 Preliminary 2009 South Coast AABM Chinook Catch by Fishery and Area

AABM Chinook

PST Regime	Fishery	Month	Numbers	
			Kept	Released
WCVI-AABM	Area G Troll	Oct-08	1,882	758
		Nov-08	1,209	157
		Dec-08	1,107	136
		Jan-09	3,394	351
		Feb-09	1,540	134
		Mar-09	586	13
		Apr-09	3,616	87
		May-09	18,062	1,144
		Jun-09	12,165	1,169
		Jul-09	0	0
		Aug-09	9,630	801
		Sep-09	0	0
Troll Total			**53,191**	**4,750**
Sport Total			**68,775**	**35,584**
First Nations	Johnstone Strait			
First Nations	Strait of Georgia			
First Nations	WCVI Offshore		3,381	0
First Nations	WCVI Inshore			
First Nations	Fraser River			
First Nations Total			**3,381**	**0**
All Total			**125,347**	**40,334**

Table 30 Preliminary 2009 South Coast ISBM Chinook Catch by Fishery and Area

ISBM CHINOOK

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
ISBM	Area G Troll	WCVI Chinook	0	0
	Area H Troll	Mainland Inlet Pinks (12)	0	0
	Area H Troll	MVI Chum (14)	0	0
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	0	10
	Area H Troll	Fraser Pink (13,18)	0	21
	Area H Troll	Fraser Pink (29)	0	1
	Area B Seine	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	2,598	0
	Area B Seine	Mainland Inlet Pinks (12)	0	0
	Area B Seine	JST Chum (12,13)	0	9
	Area B Seine	MVI Chum (18)	0	0
	Area B Seine	Fraser Pink (12,13)	0	506
	Area B Seine	Fraser Pink (29)	0	0
	Area D Gillnet	Barkley Sockeye (23)	0	6
	Area D Gillnet	Tlupana Chinook (25)	3,496	0
	Area D Gillnet	Somass Chinook (23)	3,671	0
	Area D Gillnet	Mainland Inlet Pinks (12)	0	0
	Area D Gillnet	JST Chum (12,13)	0	14
	Area D Gillnet	MVI Chum (14)	0	2
	Area E Gillnet	Fraser Chum (29)	33	48
	Area E Gillnet	MVI Chum (17/18)	1	0
Total Commercial Catch			**9,799**	**617**
Recreational	Sport	Juan de Fuca (19,20)	28,265	34,371
	Sport	Strait of Georgia (14-18,28,29)	8,899	15,194
	Sport	Johnstone Strait (11-13)	19,482	22,765
	Sport	WCVI (ISBM areas)	33,135	20,822
	Sport	Fraser River	21,579	16,160
Total Recreational Catch			**111,360**	**109,312**
First Nations FSC		Johnstone Strait	344	0
		Strait of Georgia	977	0
		WCVI	1,404	0
		Fraser River	28,541	33
Total First Nations FSC Catch			**31,266**	**33**
First Nations EO		Johnstone Strait	-	-
		Strait of Georgia	-	-
		WCVI	7,622	-
		Fraser River	4,160	72
Total First Nations EO Catch			**11,782**	**72**
First Nations ESSR		Johnstone Strait	-	-
		Strait of Georgia*	3,273	-
		WCVI	607	-
		Fraser River	5,000	0
Total First Nations ESSR Catch			**8,880**	**0**
TOTAL - ALL FISHERIES			**173,087**	**110,034**

*Number includes both adults and jacks; FSC & ESSR combined.

Table 31 Preliminary 2009 South Coast Coho Catch by Fishery and Area

COHO

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	0	12,667
	Area H Troll	Mainland Inlet Pinks (12)	0	0
	Area H Troll	MVI Chum (14)	0	0
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	6	396
	Area H Troll	Fraser Pink (13,18)	0	634
	Area H Troll	Fraser Pink (29)	0	0
	Area B Seine	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	531	0
	Area B Seine	Mainland Inlet Pinks (12)	0	0
	Area B Seine	JST Chum (12,13)	0	717
	Area B Seine	MVI Chum (18)	0	4
	Area B Seine	Fraser Pink (12,13)	7	22,759
	Area B Seine	Fraser Pink (29)	0	0
	Area D Gillnet	Barkley Sockeye (23)	0	8
	Area D Gillnet	Tlupana Chinook (25)	1	0
	Area D Gillnet	Somass Chinook (23)	377	8
	Area D Gillnet	Mainland Inlet Pinks (12)	0	22
	Area D Gillnet	JST Chum (12,13)	1	1,196
	Area D Gillnet	MVI Chum (14)	1	133
	Area E Gillnet	Fraser Chum (29)	10	1,651
	Area E Gillnet	MVI Chum (17/18)	0	88
Total Commercial Catch			**934**	**40,283**
Recreational	Sport	Juan de Fuca (19,20)	9,521	26,382
	Sport	Strait of Georgia (14-18,28,29)	521	3,221
	Sport	Johnstone Strait (11-13)	10,512	29,500
	Sport	WCVI - Inshore (21-27)	48,181	24,441
	Sport	WCVi - Offshore (121-127)	40,952	85,962
	Sport	Fraser River	7,633	9,045
Total Recreational Catch			**117,320**	**178,551**
First Nations FSC		Johnstone Strait	1,448	0
		Strait of Georgia	2,301	-
		WCVI	2,626	0
		Fraser River	304	26
Total First Nations FSC Catch			**6,679**	**26**
First Nations EO		Johnstone Strait	-	-
		Strait of Georgia	-	-
		WCVI	737	0
		Fraser River	643	1,971
Total First Nations EO Catch			**1,380**	**1,971**
First Nations ESSR		Johnstone Strait	-	-
		Strait of Georgia	2,607	0
		WCVI	26,663	0
		Fraser River	15,807	0
Total First Nations ESSR Catch			**45,077**	**0**
TOTAL - ALL FISHERIES			**171,390**	**220,831**

Table 32 Preliminary 2009 South Coast Chum Catch by Fishery and Area

Chum

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	167	4
	Area H Troll	Mainland Inlet Pinks (12)	0	0
	Area H Troll	MVI Chum (14)	15	0
	Area H Troll	Fraser Chum (29)	1	0
	Area H Troll	JST Chum (12,13)	67,898	841
	Area H Troll	Fraser Pink (13,18)	44	0
	Area H Troll	Fraser Pink (29)	0	0
	Area B Seine	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	0	0
	Area B Seine	Mainland Inlet Pinks (12)	0	0
	Area B Seine	JST Chum (12,13)	316,185	0
	Area B Seine	MVI Chum (14)	2,030	0
	Area B Seine	Fraser Pink (12,13)	6,215	487
	Area B Seine	Fraser Pink (29)	0	0
	Area D Gillnet	Barkley Sockeye (23)	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	Somass Chinook (23)	8	0
	Area D Gillnet	Mainland Inlet Pinks (12)	0	2
	Area D Gillnet	JST Chum (12,13)	126,625	5
	Area D Gillnet	MVI Chum (14)	46,609	15
	Area E Gillnet	Fraser Chum (29)	42,115	22
	Area E Gillnet	MVI Chum (17/18)	10,462	0
Total Commercial Catch			**618,374**	**1,376**
Recreational	Sport	Juan de Fuca (19,20)	127	54
	Sport	Strait of Georgia (14-18,28,29)	0	0
	Sport	Johnstone Strait (11-13)	186	74
	Sport	WCVI (21-27, 121-127)	87	0
	Sport	Fraser River	3,200	22,083
Total Recreational Catch			**3,600**	**22,211**
First Nations FSC		Johnstone Strait	12,341	0
		Strait of Georgia	5,478	-
		WCVI	2,600	0
		Fraser River	13,118	30
Total First Nations FSC Catch			**33,537**	**30**
First Nations EO		Johnstone Strait	-	-
		Strait of Georgia	-	-
		WCVI	1,332	0
		Fraser River	68,157	348
Total First Nations EO Catch			**69,489**	**348**
First Nations ESSR		Johnstone Strait	-	-
		Strait of Georgia	2,856	0
		WCVI	14,491	0
		Fraser River	8,458	0
Total First Nations ESSR Catch			**25,805**	**0**
TOTAL - ALL FISHERIES			**750,805**	**23,965**

Table 33 Preliminary 2009 Southern BC Commercial Catch Totals by Gear and Area

Gear	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
Area G Troll	WCVI AABM Chinook (23 - 27,	0	14	0	12,667	98	112	167	4	53,191	4,750
Area H Troll	Mainland Inlet Pinks (12)	0	0	0	0	0	0	0	0	0	0
Area H Troll	MVI Chum (14)	0	0	0	0	0	0	15	0	0	0
Area H Troll	Fraser Chum (29)	0	0	0	0	0	0	1	0	0	0
Area H Troll	JST Chum (12,13)	0	2	6	396	1	8	67,898	841	0	10
Area H Troll	Fraser Pink (13,18)	0	364	0	634	16,728	0	44	0	0	21
Area H Troll	Fraser Pink (29)	0	0	0	0	0	19	0	0	0	1
Area B Seine	Barkley Sockeye (23)	15,039	0	0	0	0	0	0	0	0	0
Area B Seine	Somass Chinook (23)	0	4,841	531	0	0	0	0	0	2,598	0
Area B Seine	Mainland Inlet Pinks (12)	0	0	0	0	0	0	0	0	0	0
Area B Seine	JST Chum (12,13)	0	1	0	717	3	0	316,185	0	0	9
Area B Seine	MVI Chum (18)	0	0	0	4	0	0	2,030	0	0	0
Area B Seine	Fraser Pink (12,13)	13	9,978	7	22,759	1,295,095	53	6,215	487	0	506
Area B Seine	Fraser Pink (29)	0	34	0	0	98,461	0	0	0	0	0
Area D Gillnet	Barkley Sockeye (23)	9,213	0	0	8	0	0	0	0	0	6
Area D Gillnet	Tlupana Chinook (25)	0	0	1	0	0	0	0	0	3,496	0
Area D Gillnet	Somass Chinook (23)	0	69	377	8	0	0	8	0	3,671	0
Area D Gillnet	Mainland Inlet Pinks (12)	0	11	0	22	746	0	0	2	0	0
Area D Gillnet	JST Chum (12,13)	0	0	1	1,196	7	4	126,625	5	0	14
Area D Gillnet	MVI Chum (14)	0	0	1	133	0	0	46,609	15	0	2
Area E Gillnet	Fraser Chum (29)	1	5	10	1,651	1	73	42,115	22	33	48
Area E Gillnet	MVI Chum (17/18)	0	0	0	88	0	0	10,462	0	1	0
TOTALS		**24,266**	**15,319**	**934**	**40,283**	**1,411,140**	**269**	**618,374**	**1,376**	**62,990**	**5,367**

*Oct'08-Sept'09

Table 34 2009 Southern BC Recreational Catch Totals by Area

Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
Juan de Fuca	152	1,091	9,521	26,382	50,917	15,560	127	54	28,265	34,371		
Strait of Georgia	0	1,095	521	3,221	2,595	1,093	0	0	8,899	15,194		
Johnstone Strait	49	367	10,512	29,500	38,897	17,118	186	74	19,482	22,765		
WCVI	56,500	1,726	89,133	110,403	924	738	87	0	33,135	20,822	68,775	35,584
Fraser River	29	21,213	7,633	9,045	66,093	272,189	3,200	22,083	21,579	16,160		
Total	**56,730**	**25,492**	**117,320**	**178,551**	**159,427**	**306,698**	**3,600**	**22,211**	**111,360**	**109,312**	**68,775**	**35,584**

All totals are preliminary.

JDF totals are from Jan to Sept; the program is still running and will end Dec31.

SoG totals are from May to Sept.

Table 35 2009 Southern BC First Nations Catch Estimates by Area

Fishery type	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
FSC	Johnstone Strait	10,124	0	1,448	0	22,501	0	12,341	0	344	0	-	-
FSC	Strait of Georgia	495	0	2,301	-	211	0	5,478	-	977	0	-	-
ESSR	Strait of Georgia	-	-	2,607	0	-	-	2,856	0	3,273	-	-	-
FSC	WCVI	77,638	0	2,626	0	133	0	2,600	0	1,404	0	3,381	0
EO	WCVI	0	0	737	0	-	-	1,332	0	7,622	-	-	-
ESSR	WCVI	-	-	26,663	0	-	-	14,491	0	607	-	-	-
FSC	Fraser River	59,873	1,315	304	26	1,893	217	13,118	30	28,541	33	-	-
EO	Fraser River	44	244	643	1,971	512,185	61,265	68,157	348	4,160	72	-	-
ESSR	Fraser River	-	-	15,807	0	12,312	0	15,807	0	5,000	0	-	-
	Total	148,174	1,559	53,136	1,997	549,235	61,482	136,180	378	51,928	105	3,381	0

Table 36 2009 South Coast Test Fishery Catches – Revised June 1, 2010

Test-Fishery	Sockeye retain	Sockeye release	Coho retain	Coho release	Pink retain	Pink release	Chum retain	Chum release	Chinook retain	Chinook release	GRAND TOTAL
Albion Chinook Gillnet	1003	10		55	67		2239	14	1995	0	5383
Albion Chum Gillnet	171	2		328	362		7010		271		8144
Area 12 Chum Seine		13		643		196	1007	60265		26	62150
Naka Creek Sockeye Gillnet	1508		48	72	227	211	21		2	2	2091
Area 13 Sockeye Seine	4322	17176	2	465	3861	146535	1	289		237	172888
Area 23 Sockeye Seine	696	12632		12				1		45	13386
Blinkhorn Sockeye Seine	5387	18897		2376	3224	250485	2	1238		545	282154
Cowichan Chum Seine				20				1055			1075
Saanich Chum Sein								295			295
Nitinat Lake Chum Gillnet				72			4755	66			4893
Round Island Sockeye Gillnet	902		191	78	574		46		30	25	1846
San Juan Sockeye Seine	6197	2329		6640	10211	104239		105		1417	131138
San Juan Sockeye Gillnet	7773	1		2194	886	1	37	1	165	314	11372
Whonnock Gillnet	1946	56		117	3331	41	101	2	908	16	6518
Cottonwood Gillnet	1254	31		146	1141	8	7	1	219	82	2889
Mission Gillnet	363				1052		5		90		1510
Qualark Gillnet	935	9	21		1414	1313			196	100	3988
Area 29 Gulf Troll		134		4	752					12	902
Grand Total	32457	51290	262	13222	27102	503029	15231	63332	3876	2821	712622

C. 2009 POST-SEASON REPORT FOR UNITED STATES SALMON FISHERIES OF RELEVANCE TO THE PACIFIC SALMON COMMISSION

Northern Boundary Area Fisheries

District 104 Purse Seine Fishery

The 2009 Pacific Salmon Treaty (PST) Agreement calls for abundance based management of the District 104 purse seine fishery. The agreement allows the District 104 purse seine fishery to harvest 2.45 percent of the Annual Allowable Harvest (AAH) of Nass and Skeena sockeye prior to Alaska Department of Fish and Game (ADFG) statistical week 31 (referred to as the treaty period). The AAH is calculated as the total run of Nass and Skeena sockeye salmon minus either the escapement requirement of 1.1 million (200,000 Nass and 900,000 Skeena) or the actual inriver escapement, whichever is less.

The District 104 purse seine fishery opens the first Sunday in July; in 2009 the initial opening was July 5 (Week 28). The pre-Week 31 fishing plan for District 104 was based on the preseason Canadian DFO forecast returns of approximately 511,000 Nass and 2.3 million Skeena sockeye salmon.

In the 2009 treaty period, 15,971 sockeye were harvested in the following: a 12-hour opening in Week 28; two 15-hour openings in Week 29; and two 15-hour openings in Week 30 (Table 37). This is the third lowest catch of sockeye salmon in the District 104 treaty period since the treaty was signed in 1985. The number of purse seine vessels fishing in District 104 rose from 6 in the initial opening to 22 in the final opening during the treaty period. In past years 60% to 80% of treaty-period sockeye have been of Nass and Skeena origin. Thus, we would anticipate that between 9,600 and 12,800 Nass and Skeena sockeye may have been harvested in the District 104 purse seine fishery during the treaty period. The final number of Nass and Skeena sockeye harvested, and the actual catch by stock, will not be available until catch, escapement, and stock composition estimates are finalized for the year.

The average numbers of hours, boats and boat-days fished pre-Week 31 in District 104 since the Pacific Salmon Treaty was signed in 1985 are down 55%, 57% and 82% respectively compared to the 1980-1984 period (Table 38). The total pre-Week 31 Treaty-period sockeye harvest is also down 39% despite a 280% increase in the average sockeye catch-per-boat-day since 1984. The seine fleet moves freely between districts as various species are harvested, so seining opportunities elsewhere affect the effort and catch in District 104.

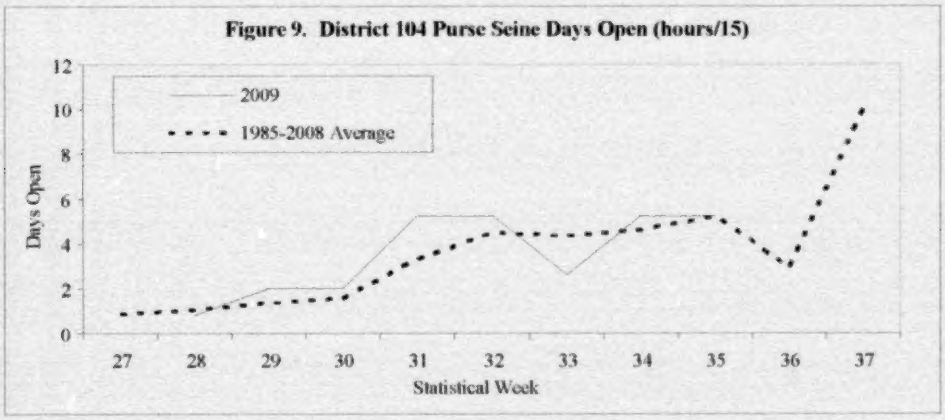
Table 37 Catch and Effort in the Alaska District 104 Purse Seine Fishery, 2009

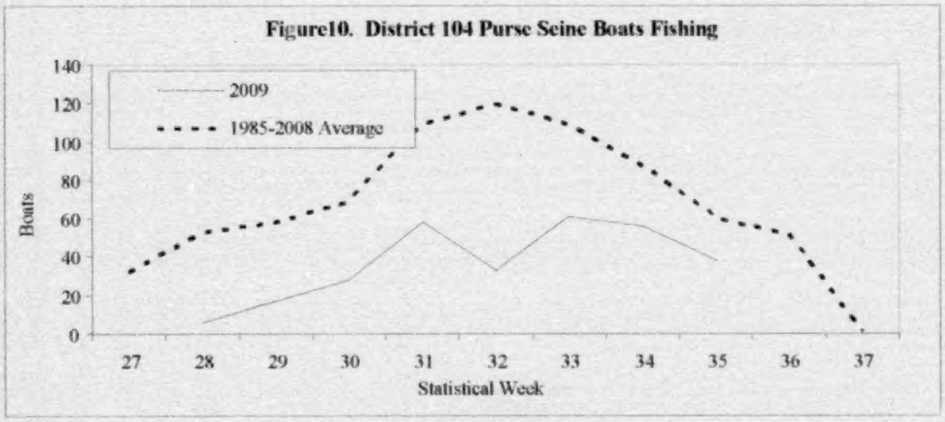
Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
28	7/5	12	914	270	2,919	4,091	6	12
29	7/12	58	1,199	519	19,992	4,215	10	15
29B	7/16	197	1,898	3,293	59,499	4,255	10	15
30	7/19	537	6,669	5,163	173,215	7,123	16	15
30B	7/23	193	5,291	3,320	109,287	6,094	22	15
31	7/26	1,586	43,968	19,578	1,021,313	20,202	54	39
31B	7/30	158	6,209	2,179	280,568	3,960	19	39
32	8/3	156	2,605	1,868	217,555	2,768	21	39
32B	8/7	692	4,683	4,889	512,917	9,754	24	39
33	8/11	2,275	13,498	15,999	1,061,416	21,327	53	39
33B	8/15	716	8,268	9,327	1,015,924	11,182	51	39
34	8/19	390	7,591	7,634	621,416	13,187	42	39
35	8/23	67	3,621	3,405	259,631	6,425	37	39
35B	8/27	35	2,957	6,943	98,780	3,416	10	39
Weeks 27-30		997	15,971	12,565	364,912	25,778	38	72
Weeks 31-35		6,075	93,400	71,822	5,089,520	92,221	88	351
Total Season		7,072	109,371	84,387	5,454,432	117,999	92	423

Table 38 Fishing Opportunity, Effort, and Sockeye Harvest Prior to Week 31 in the District 104 Purse Seine Fishery, 1980 to 2009

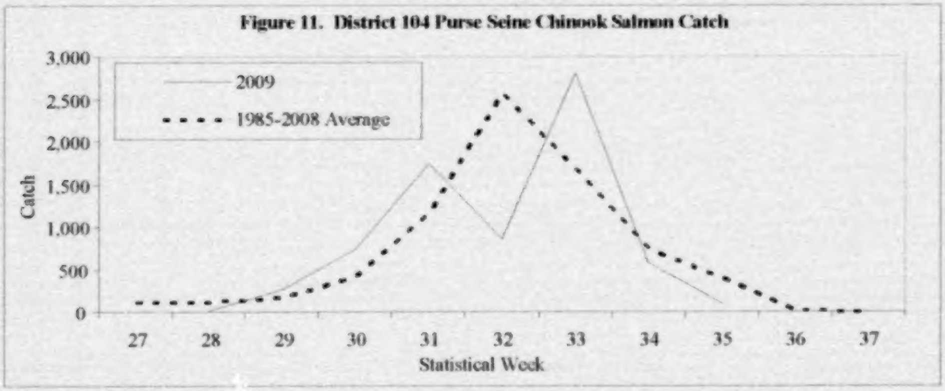
Year	Hours Fished	Boats Fishing	Fraction Days Fished (1d=15hrs)	Boat-Days Fished (Fraction Boats and Fraction Days)	Sockeye Harvest	Sockeye Catch per Boat-Day
1980	207	244	13.8	2,877	266,273	93
1981	132	212	8.8	1,108	185,188	167
1982	117	255	7.8	1,435	213,150	149
1983	108	241	7.2	1,211	170,306	141
1984	132	174	8.8	805	103,319	128
1985	84	141	5.6	502	100,590	200
1986	108	194	7.2	968	91,320	94
1987	90	134	6	457	72,385	158
1988	108	210	7.2	994	248,789	250
1989	84	135	5.6	438	157,566	360
1990	42	171	2.8	276	169,943	615
1991	41	134	2.7	243	98,583	406
1992	29	108	1.9	142	79,643	561
1993	45	171	3	343	163,189	476
1994	55	84	3.7	202	158,524	783
1995	58	109	3.9	218	71,376	328
1996	31	113	2.1	128	215,144	1,684
1997	56	159	3.7	409	572,942	1,402
1998	32	78	2.1	89	17,394	196
1999	30	38	2	44	7,664	174
2000	81	66	5.4	192	48,969	255
2001	50	95	3.3	182	203,090	1,115
2002	72	44	4.8	124	26,554	215
2003	52	40	3.5	97	84,742	875
2004	107	24	7.1	102	30,758	302
2005	68	38	4.5	93	35,690	382
2006	95	39	6.3	117	89,615	766
2007	50	68	3.3	136	112,135	824
2008	33	17	2.2	22	6,262	281
2009	72	38	4.8	95	15,971	168
Avg. 80-84	139	225	9	1,487	187,647	136
Avg. 85-09	63	98	4	265	115,154	515
% Change	-55%	-57%	-55%	-82%	-39%	280%

In the 2009 season, the District 104 purse seine fishery harvested 5,454,432 pink salmon, 109,371 sockeye, 84,387 coho, 117,999 chum, and 7,072 Chinook salmon. During the 2009 season, 92 purse seine vessels fished in District 104, up from a low of 60 in 2004 but still well below the 200-250 fishing in the 1980's and early 1990's. The number of days that the fishery was open was slightly above the 1985-2008 average except in week 33 (Figure 9). The number of boats fishing was below average throughout the season (Figure 10).

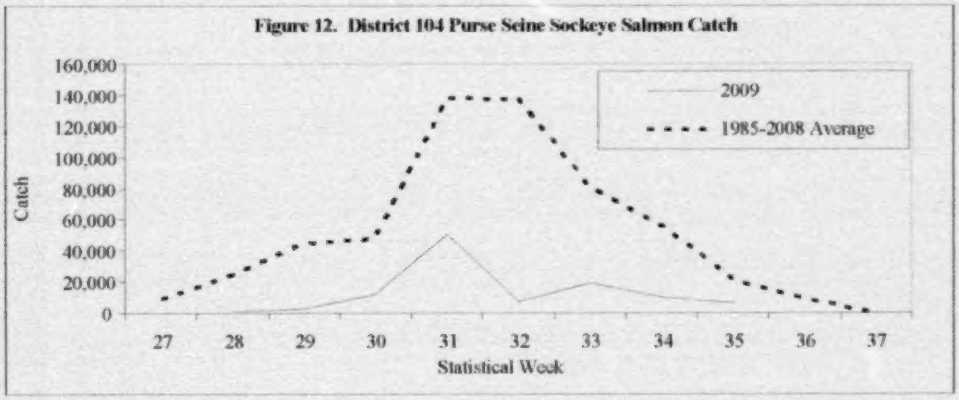




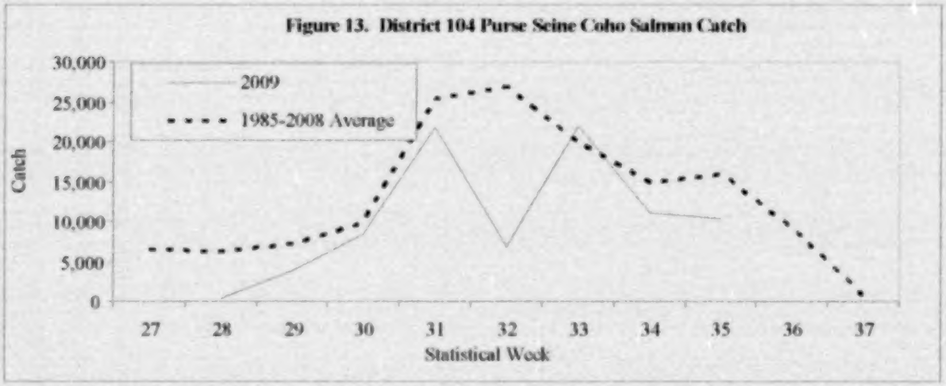
Chinook salmon catches in the District 104 purse seine fishery were generally above average in 2009 with the exception of week 32. There was no District 104 purse seine non-retention period for Chinook salmon in 2009.

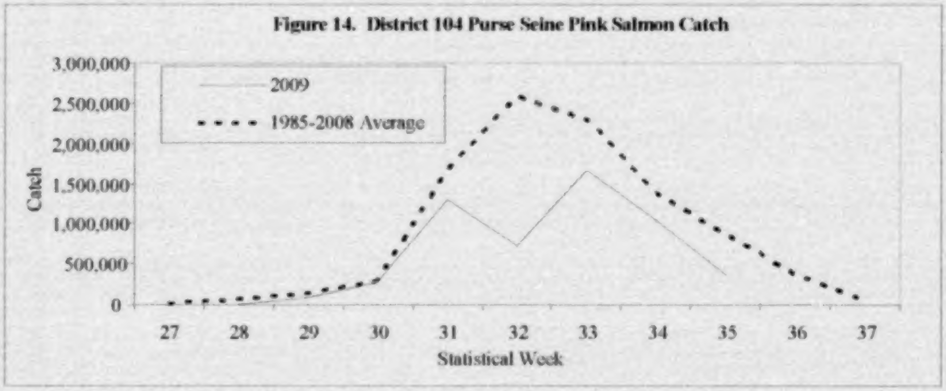


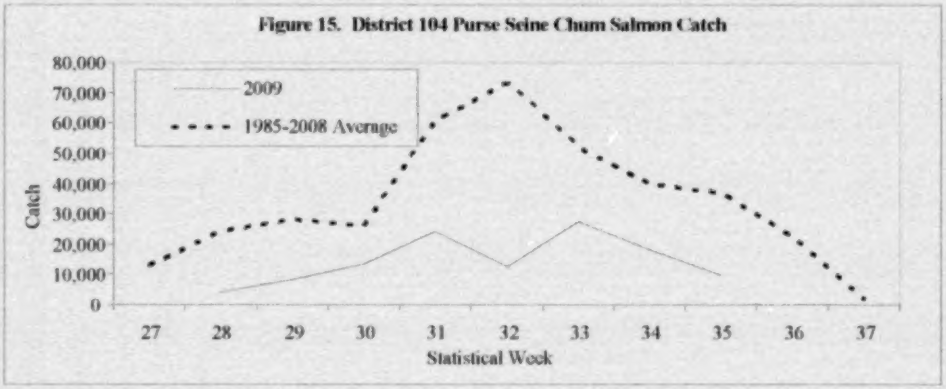
Sockeye salmon catches were far below average throughout the season (Figure 12). The treaty period (week 28-30) sockeye catch of 15,971 was the third lowest since the treaty was signed in 1985 while the season's total catch of 109,371 was the second lowest and only 20% of the treaty period average.



Catches of coho, pink, and chum salmon were also below average throughout the season (Figures 13-15).







District 101 Drift Gillnet Fishery

The 2009 PST agreement calls for abundance based management of the District 101 (Tree Point) drift gillnet fishery. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye run. For the 2009 season, DFO forecast a total return of 511,000 Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual inriver escapement, whichever is less.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the run strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

A total of 69,859 sockeye salmon were harvested in the District 101 drift gillnet fishery in 2009 (Table 39). The sockeye harvest was 51% the 1985-2008 average of 137,353 and the fourth lowest since the treaty was signed in 1985. The number of hours fished was above average. The number of boats fishing annually, while still about half (54%) the 1985-2008 average of 119, rose from 54 in 2008 to 65 in 2009. The final number of Nass River sockeye harvested at Tree Point will not be available until catch, escapement, and stock composition estimates are finalized for the 2009 season.

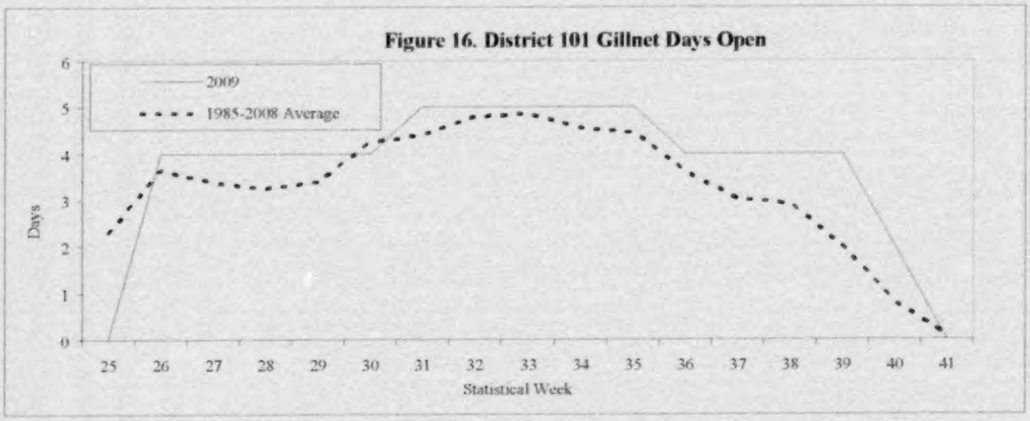
Table 39 Weekly catch and effort in the Alaska District 101 commercial drift gillnet fishery, 2009.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
26	21-Jun	473	15,177	720	151	26,285	50	96
27	28-Jun	215	9,505	952	14,800	58,745	49	96
28	5-Jul	173	8,494	1,697	16,492	53,241	45	96
29	12-Jul	105	7,999	2,120	14,217	36,747	44	96
30	19-Jul	103	7,731	2,200	18,107	29,370	42	96
31	26-Jul	50	10,113	4,962	32,048	21,436	42	120
32	2-Aug	25	6,269	5,172	26,739	8,771	42	120
33	9-Aug	2	2,186	4,019	19,910	6,640	34	120
34	16-Aug	4	1,141	3,406	15,084	3,158	30	120
35	23-Aug	3	710	4,837	10,054	5,011	30	120
36	30-Aug	3	397	8,772	2,293	3,779	35	96
37	6-Sep	3	121	15,039	645	5,316	33	96
38	13-Sep	1	16	10,094	35	3,437	32	96
39	20-Sep	0	0	2,506	0	1,042	18	96
40	27-Sep	0	0	673	0	57	3	48
Total		1,160	69,859	67,169	170,575	263,035	65	1,512
1985-2008 Avg.		1,489	137,353	43,920	538,884	305,986	119	1,326

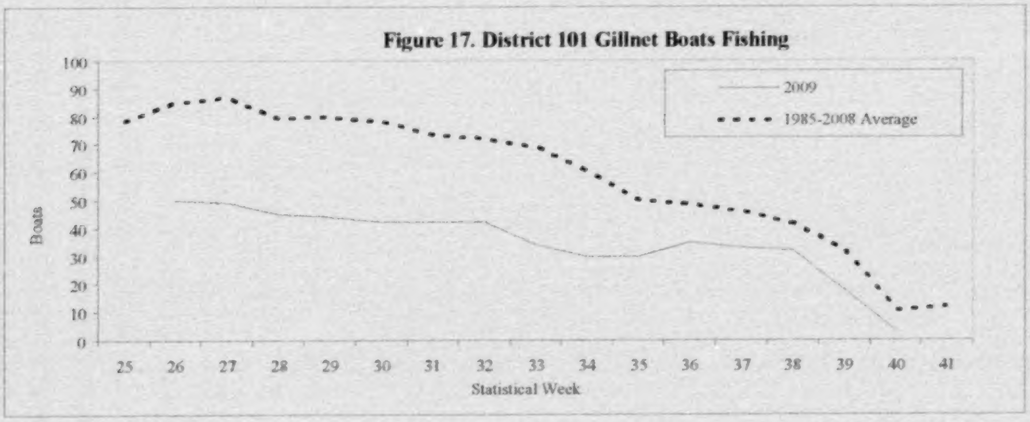
Table 40 Sockeye Harvest in the Alaska District 101 Gillnet Fishery, 1985 to 2009 and Comparison of Harvest and Effort (boats, hours, and boat-hours) between Statistical Weeks 26-35 when Sockeye Salmon are Most Abundant.

	Total	Catch and Effort between Weeks 26-35			
Year	Sockeye Harvest	Sockeye Harvest	Boats	Hours	Boat-Hours
1985	173,100	159,021	153	1,032	157,865
1986	145,699	143,286	198	960	190,044
1987	107,503	106,638	170	615	104,519
1988	116,115	115,888	187	756	141,338
1989	144,936	130,024	176	1,023	180,016
1990	85,691	78,131	150	840	125,969
1991	131,492	123,508	130	984	127,920
1992	244,649	243,878	118	1,080	127,416
1993	394,098	390,299	148	1,032	152,733
1994	100,377	98,725	142	984	139,700
1995	164,294	151,131	128	1,008	129,024
1996	212,403	175,569	129	1,104	142,408
1997	169,474	152,662	128	1,008	129,024
1998	160,506	159,307	124	1,044	129,454
1999	160,028	158,268	118	1,032	121,776
2000	94,651	94,399	95	912	86,640
2001	80,041	62,129	73	1,020	74,445
2002	120,353	106,360	68	1,008	68,544
2003	105,263	96,921	68	1,104	75,058
2004	142,357	141,395	61	1,104	67,332
2005	79,725	75,875	69	1,104	76,162
2006	62,770	53,048	45	840	37,791
2007	66,822	50,642	54	1,032	55,717
2008	34,113	30,672	47	936	43,983
2009	69,859	69,325	62	1,080	66,948
Average 1985-2008	137,353	129,074	116	982	111,870

The District 101 gillnet fishery opened Sunday June 21 (Week 26). With the exception of Week 30, fishing time was slightly above average throughout the season (Figure 16).

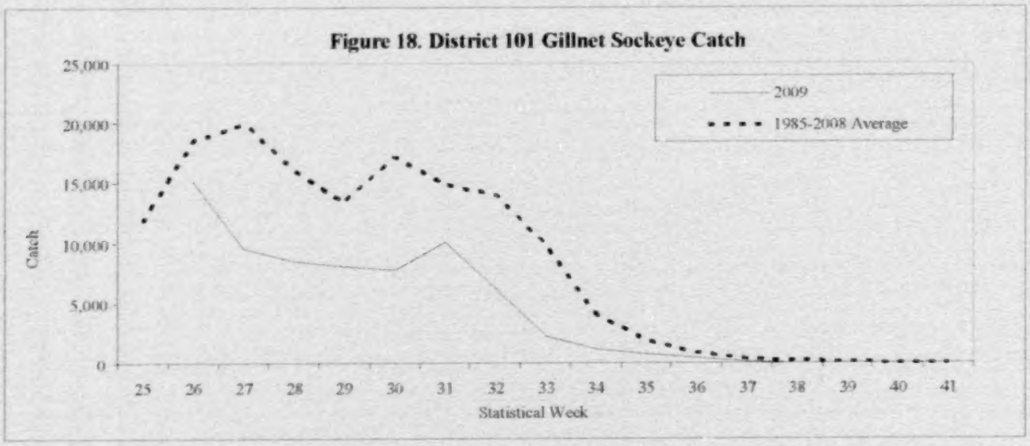


The number of boats fishing during weekly openings remained below average (Figure 17).



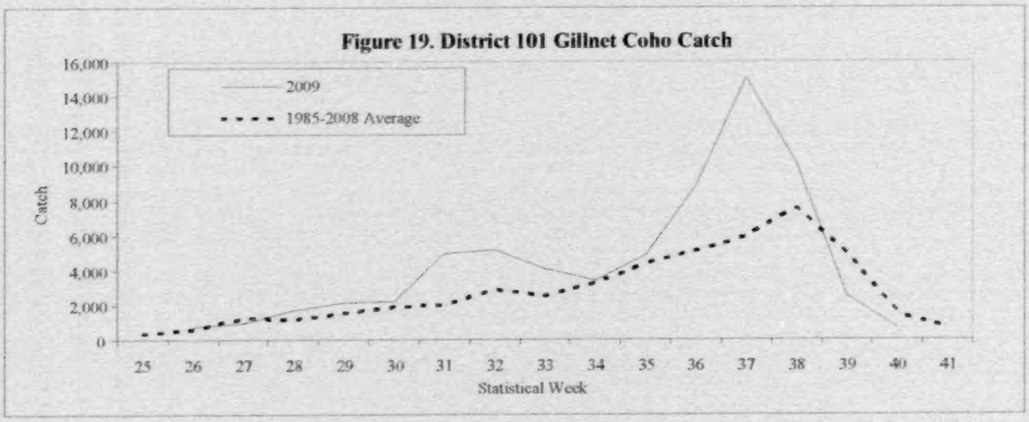
Catches of sockeye were below treaty period averages throughout the season (Figure 18). Total sockeye catch was the 4th lowest in the 26 years since the treaty was signed. The sockeye harvest prior to the initiation of the Pink Salmon Management Plan in Week 30 was 41,175 fish, or about 59% of the total.

Figure 18. District 101 Gillnet Sockeye Catch

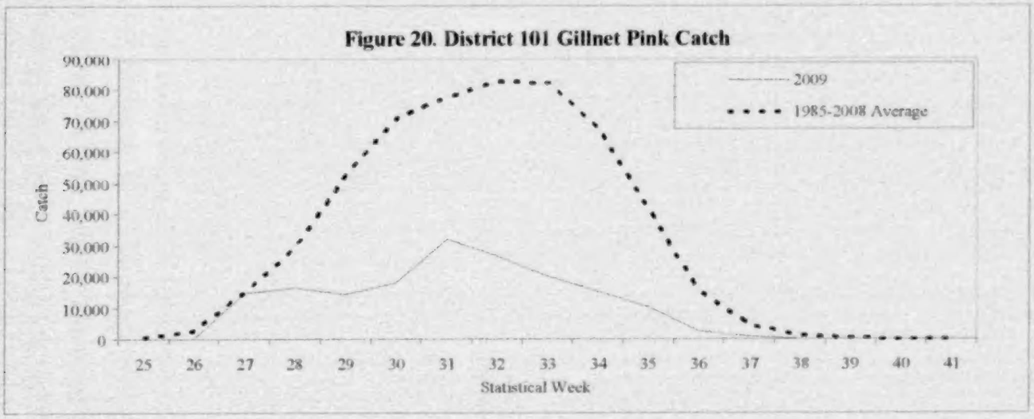


Coho catches were above average, particularly later in the season (Figure 19).

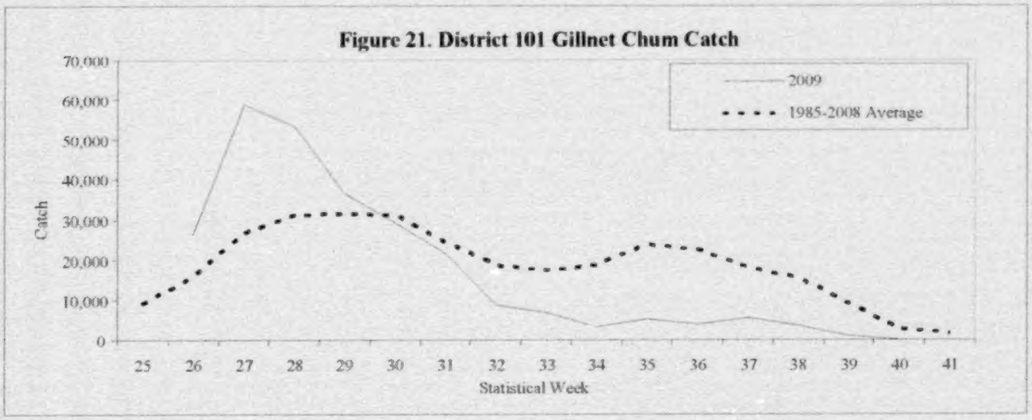
Figure 19. District 101 Gillnet Coho Catch



Pink salmon catches were below average throughout the season (Figure 20).



Chum salmon catches were above average early in the season but fell below average in late July (Figure 21).



Chinook salmon catches were close to the treaty period average throughout the season (Figure 22).

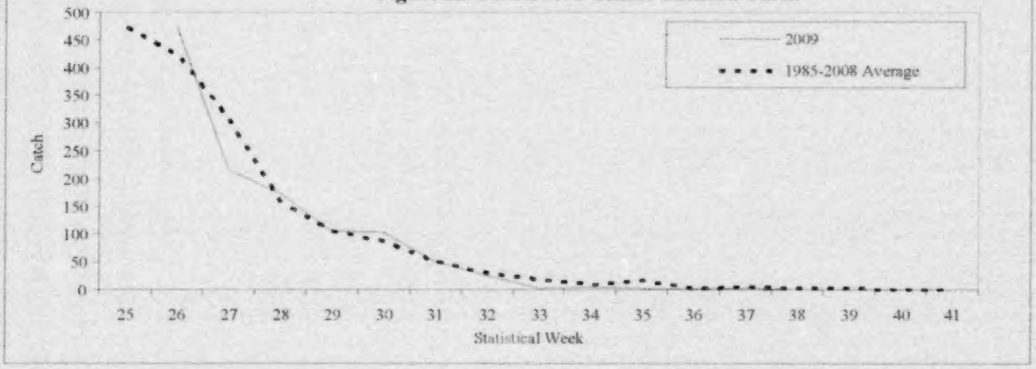


Figure 22. District 101 Gillnet Chinook Catch

Beginning on August 30 (week 36) the fishery was managed on the strength of wild stock fall chum and coho salmon returns. Fall coho catches were above average while fall chum catches were below average during this period.

Pink, Sockeye, and Chum Salmon Escapements

The total 2009 Southeast Alaska pink salmon escapement index of 12.7 million index fish ranked 14th since 1960, but was below the recent 10-year average of 16.6 million. Biological escapement goals are in place for three sub-regions in Southeast Alaska (Table 41). Escapement goals were reached for all three sub-regions in 2009 and escapements met or exceeded management targets for all districts in the region. On a finer scale, management targets were met or exceeded in 41 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast sub-region includes all of the area from Sumner Strait south to Dixon Entrance (Districts 1–8). The pink salmon harvest of 26.4 million in the Southern Southeast sub-region was just above the recent 10-year average and the escapement index value of 7.2 million fell near the upper end of the escapement goal range of 3.0 to 8.0 million index fish.

Table 41 2009 Southeast Alaska Pink Salmon Escapement Indices and Biological Escapement Goals by Sub-Region (in millions).

Sub-region	2009 Pink Salmon Index	Biological Escapement Goal[1] Lower Bound	Upper Bound
Southern Southeast	7.2	3.0	8.0
Northern Southeast Inside	3.7	2.5	6.0
Northern Southeast Outside	1.8	0.75	2.50
Total	12.7		

[1] Pink salmon escapement goals were recently adjusted as a result of updates and changes to the pink salmon escapement index.

Sockeye salmon runs throughout Southeast Alaska were mixed in 2009. Escapement targets were met for 7 of the 13 sockeye salmon systems in Southeast Alaska with formal escapement goals. The Hugh Smith Lake adult sockeye escapement was 9,500, which fell within the biological escapement goal range of 8,000 to 18,000 adult sockeye salmon. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was estimated to be 51,000 fish, which is slightly below the lower bound of 55,000.. McDonald Lake sockeye salmon were listed as a "stock of management concern" at the 2009 Board of Fisheries meeting and a new sustainable escapement goal of 55,000 to 120,000 sockeye salmon was adopted. Escapements at McDonald Lake have been below the revised escapement goal in five of the past six years.

Escapement survey information for chum salmon index streams indicated that escapements of summer-run chum salmon throughout Southeast Alaska were poor in 2009. In southern Southeast Alaska, runs are broken into summer and fall runs. The Southern Southeast chum salmon stock group is composed of an aggregate of 13 summer-run chum salmon streams on the inner islands and mainland of southern Southeast Alaska, from Sumner Strait south to Dixon entrance, with a sustainable escapement goal of 68,000 index spawners (based on the aggregate peak survey to all 13 streams). The index of 41,000 in 2009 was approximately 50% of the recent 10-year average and well below the escapement goal (Figure 23).

Fall chum salmon runs on Prince of Wales Island appeared to be weak to average overall, although the escapement goal was easily met in Cholmondeley Sound—the one area with a formal escapement goal for fall chum salmon in southern Southeast Alaska. Fall chum salmon runs are monitored in Cholmondeley Sound through aerial surveys at Disappearance and Lagoon creeks. The escapement index of 39,000 was within the sustainable escapement goal range of 30,000 to 48,000 index spawners (based on the aggregate peak survey to both streams; Figure 24).

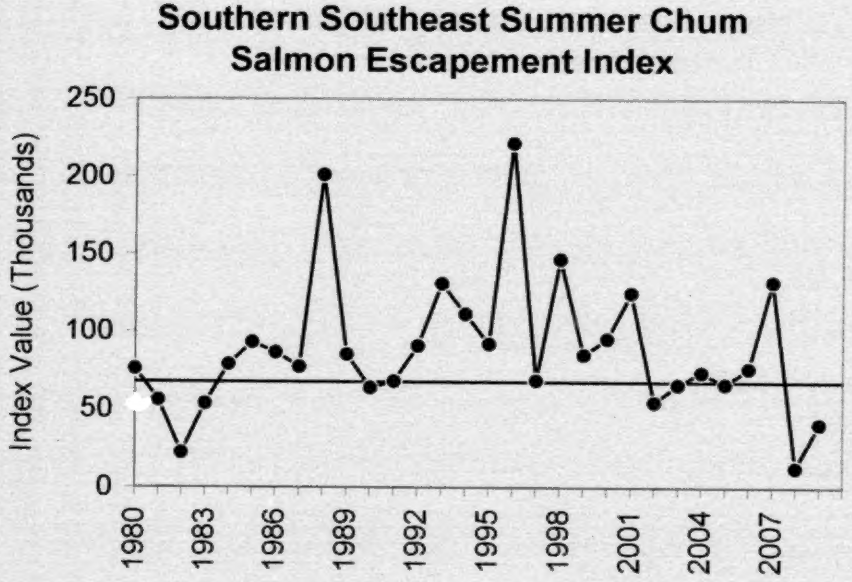


Figure 23. Observed escapement index value by year (solid circles) and the sustainable escapement goal threshold of 68,000 index spawners (horizontal line) for wild summer-run chum salmon in the Southern Southeast sub-region, 1980–2009.

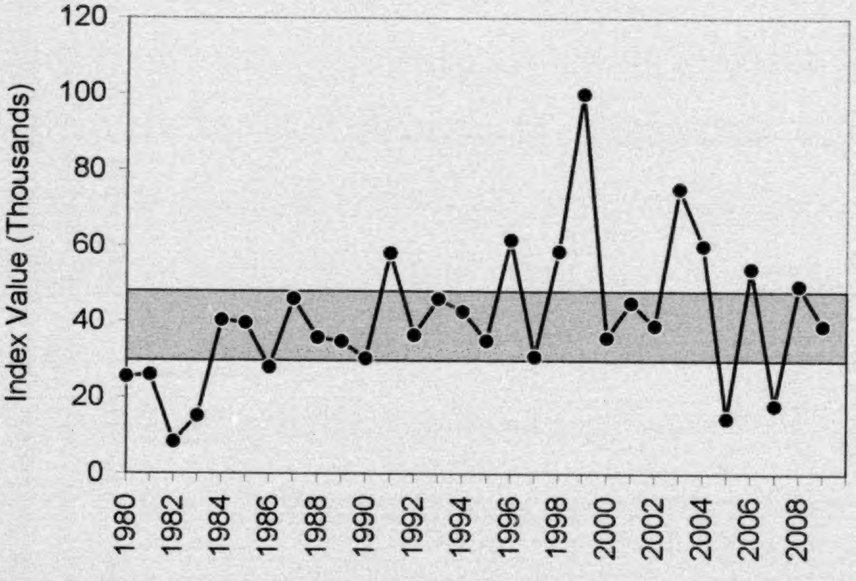


Figure 24. Observed escapement index value by year (solid circles) and the sustainable escapement goal range of 30,000 to 48,000 index spawners (shaded area) for Cholmondeley Sound fall-run chum salmon, 1980–2009.

Transboundary Area Fisheries

Stikine River Area Fisheries

Districts 106 and 108 were originally scheduled to open Monday June 8, 2009 (the second Monday). However, due to the declining forecast of Stikine River Chinook salmon and the very early opening date, neither district was opened as scheduled. District 106 was rescheduled to open for two days on Monday June 15 with the opening extended for one additional day. A restricted area of District 108 opened one week later. Sockeye catch rates in the initial District 106 opening were double the ten-year average with the majority of the effort in the Sumner Strait portion of the district and minimal effort in the Clarence Strait portion. In early July sockeye catches declined while chum catches increased significantly. From mid-July through early August fishing time in District 106 was reduced to two days a week to help conserve McDonald Lake sockeye. In mid-July many boats moved north to District 111 although sockeye, chum and coho catch rates in District 106 were above average while pink salmon catch rates were well below average. In early August management switched to pink salmon and, with catches well below average, fishing time was limited to three days a week while effort increased as boats returned from District 111. Many boats targeting chum salmon fished in both District 106 and 108 during this period making effort levels for both districts appear higher than they actually were. By early August the majority of mainstem Stikine sockeye are through marine waters. Coho catches, which included significant numbers of both wild and hatchery stocks, were significantly above average in early August. However, pink salmon catches were well below average in August resulting in weekly openings limited to three days. Many fishermen were using large-mesh gear in August to target chum salmon which also limited the catch of pink salmon which were relatively small in size. Coho management in District 106 began August 30. Below average coho catch rates in September resulted in the fishery being limited to 3 days a week until the final opening of 2 days at the end of September.

The 2009 harvest in the District 106 commercial gillnet fishery included 1,625 Chinook, 111,984 sockeye, 144,569 coho, 145,589 pink, and 287,707 chum salmon (Table 42). District 106 harvests of all species except pink salmon were above the 1999-2008 average (Figures 27-31). The final inseason estimate of Stikine River sockeye salmon harvested in District 106 was 35,425 or approximately 31% of the harvest. Neck Lake contributed approximately 4,600 sockeye (4%) to the District 106 harvest. An estimated 980 Chinook salmon in the District 106 harvest (60%) were of Alaskan hatchery origin. An estimated 73,889 coho salmon in the District 106 harvest were of Alaskan hatchery origin, 51% of the total coho salmon harvest.

The number of gillnet vessels that fished was slightly above average while the number of days the fishery was open was slightly below average. Overall, fishing time was slightly below the ten-year average in District 106, due mainly to conservation efforts for McDonald Lake sockeye and a postponed season opening for Stikine Chinook conservation (Figures 25 and 26).

Table 42 Weekly Salmon Catch in the Alaskan District 106 Commercial Drift Gillnet Fisheries, 2009. Catches do not include Blind Slough terminal area harvests.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
25	15-Jun	540	17,936	1,269	163	6,983	69	3	207
26	21-Jun	349	17,529	4,475	3,457	22,276	69	4	276
27	28-Jun	248	16,745	8,554	14,070	72,691	89	3	267
28	5-Jul	230	15,285	10,020	15,349	51,983	85	3	255
29	12-Jul	63	10,723	8,335	9,384	20,773	50	2	100
30	19-Jul	8	4,899	9,643	3,852	9,065	35	2	70
31	26-Jul	16	8,134	7,046	10,807	12,950	68	2	136
32	2-Aug	119	10,440	16,113	34,409	11,389	85	3	255
33	9-Aug	12	6,146	13,218	22,226	8,919	83	3	249
34	16-Aug	3	2,975	10,367	19,070	10,371	73	3	219
35	23-Aug	2	829	6,971	4,943	11,110	56	3	168
36	30-Aug	4	261	14,507	4,387	14,303	99	3	297
37	6-Sep	16	59	14,367	1,339	16,194	97	3	291
38	13-Sep	11	23	13,017	133	13,736	84	3	252
39	20-Sep	2	0	3,608	0	2,496	51	3	153
40	27-Sep	2	0	3,059	0	2,468	29	2	58
Total		1,625	111,984	144,569	143,589	287,707	170	45	3,252
1999-2008 Average		1,264	97,341	144,532	335,680	232,223	160	49	3,027
2009 as % of Average		129%	115%	100%	43%	124%	106%	92%	107%

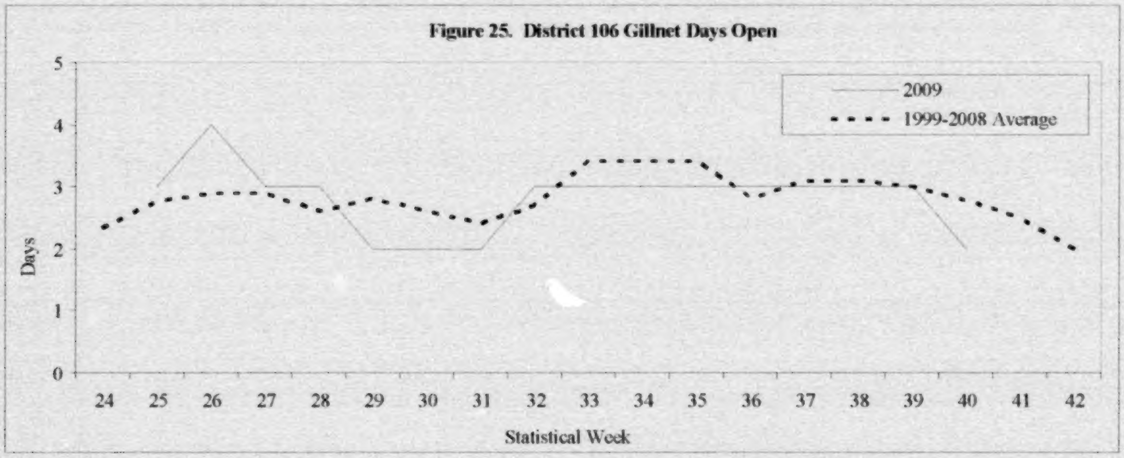


Figure 26. District 106 Gillnet Boats Fishing

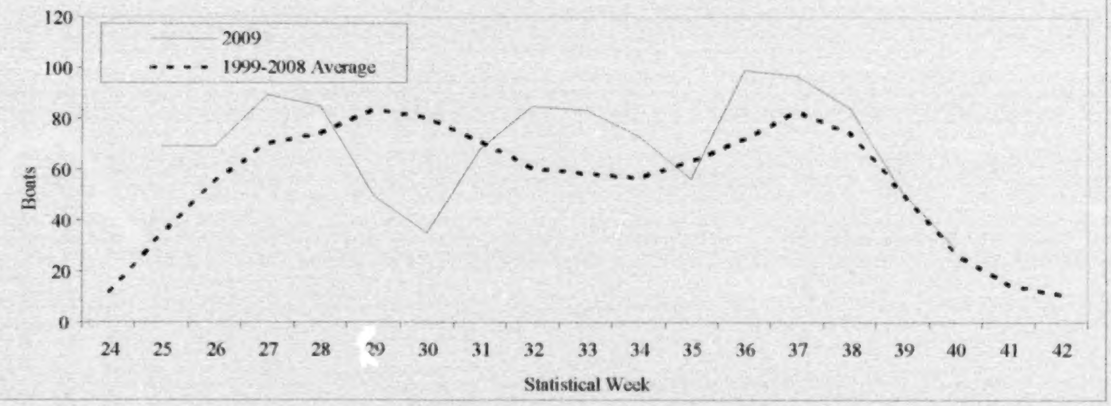


Figure 27. District 106 Gillnet Chinook Catch

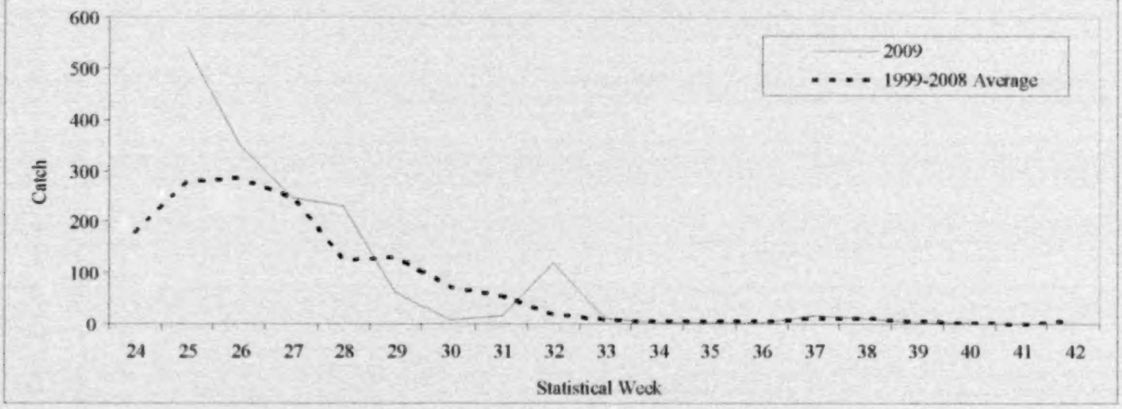


Figure 28. District 106 Gillnet Sockeye Catch

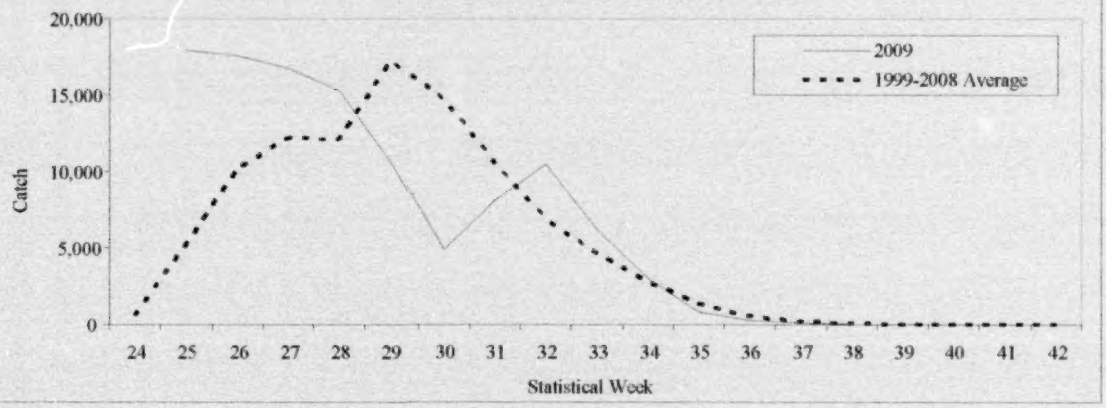


Figure 29. District 106 Gillnet Coho Catch

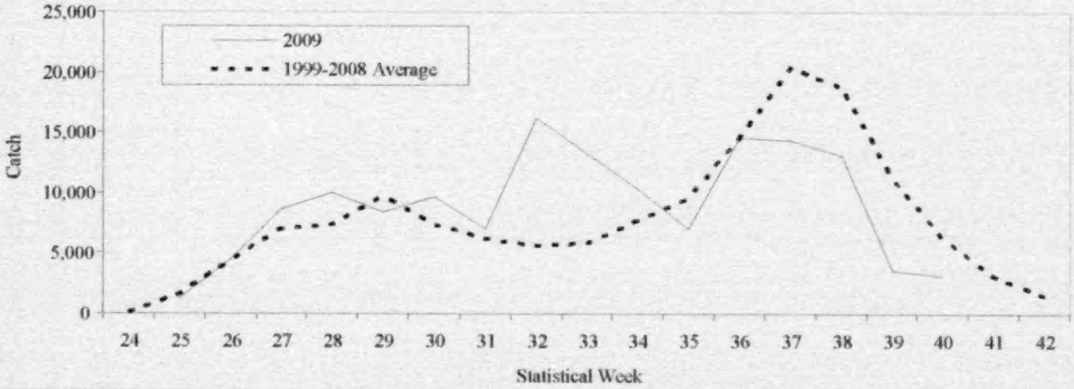


Figure 30. District 106 Gillnet Pink Catch

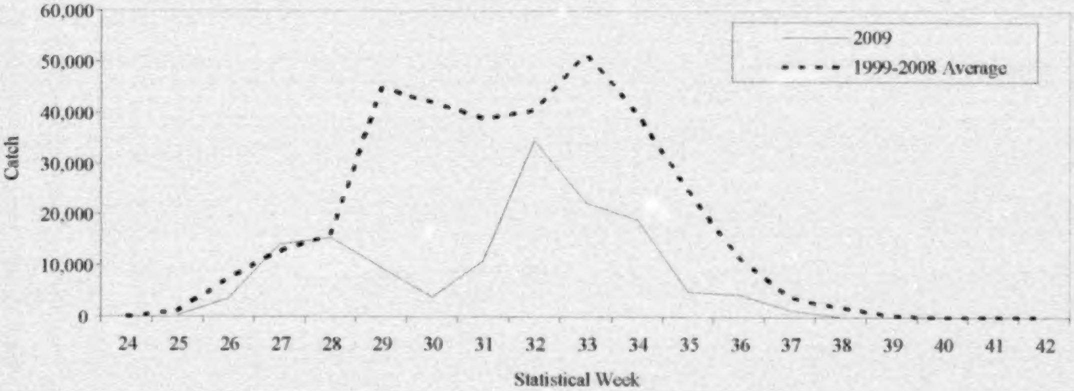
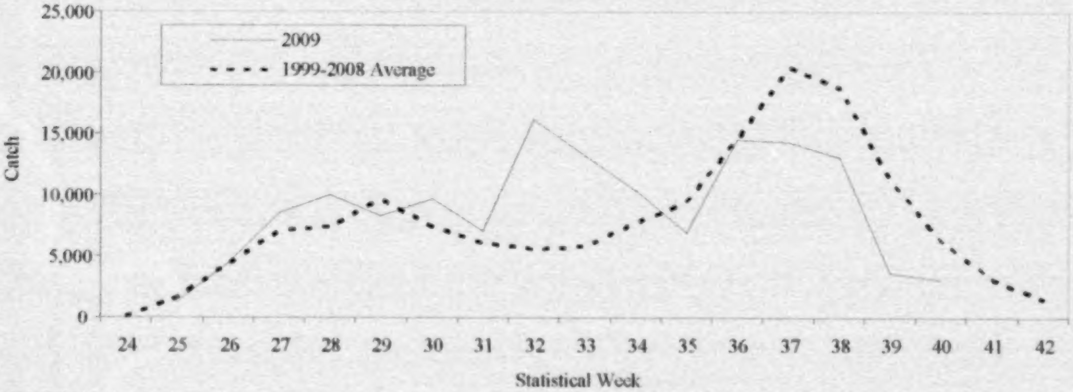


Figure 31. District 106 Gillnet Chum Catch



The 2009 preseason forecasts and inseason estimates of the terminal run size of Stikine River Chinook salmon were too low to allow a directed Chinook salmon fishery in District 108. The District 108 directed sockeye fishery was originally scheduled to open on Monday June 8 but, due to declining estimates of Chinook returns and the relatively early opening date, opening of the fishery was postponed two weeks until June 21 with area restrictions to minimize the harvest of Chinook salmon.

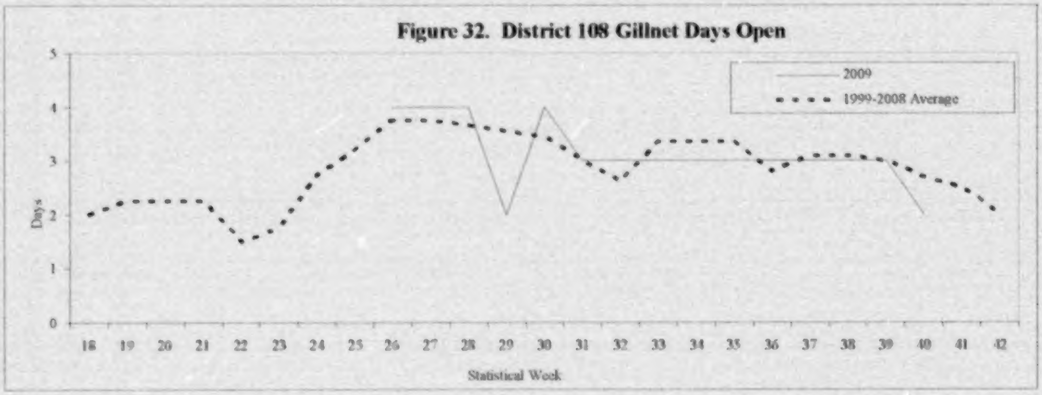
In the 2009 District 108 directed sockeye fishery; 2,406 Chinook, 36,860 sockeye, 30,860 coho, 27,010 pink, and 190,800 chum salmon were harvested (Table 43). Chinook, sockeye and pink salmon harvests were below the ten-year average while coho and chum harvests were above average. (Figures 26-30). The total number of permits participating in the fishery was above average while the number of days the fishery was open was below average (Figures 24 and 25). An estimated 71% of the Chinook salmon harvest and 28% of the coho salmon harvest was of Alaskan hatchery origin

The preseason run estimate for Stikine sockeye of approximately 275,000 fish with 150,000 bound for the Tahltan river was well above the ten-year average of 98,000. Sockeye catch rates in early openings were well above average. Early in the season many boats moved to Anita Bay to harvest enhanced Chinook and chum salmon or to District 106 to target abundant chum salmon returns. In July estimates of Stikine River sockeye returns declined to 190,000 fish and it appeared that the Tahltan component was tapering off faster than expected. Beginning in mid-July fishing effort declined as many boats targeted Anita Bay chum or moved north to harvest abundant chum salmon returns in District 111; this shift in effort reduced the total weekly sockeye catch even though the catch-per-boat remained above average. Chum salmon catch rates were above average for the relatively small number of boats targeting Stikine sockeye. Including the Anita Bay fishery over 100,000 chum salmon were harvested in the last two weeks of July.

While the Stikine sockeye terminal run forecast declined to 175,000 by early August the lower end of the Tahltan sockeye escapement goal had been achieved and the mainstem forecast remained stable. Fishing effort increased in August as boats returned from District 111. By mid-August the midpoint of the Tahltan sockeye escapement goal was reached and it appeared that the mainstem goal would be reached. Coho management of District 108 began August 30 and coho catch rates were above average in September.

Table 43 Weekly Salmon Catch and Effort in the Alaskan District 108 Commercial Drift Gillnet Fishery, 2009. The permit days are adjusted for boats that fished only the midweek opening. All averages include the directed Stikine Chinook fisherine in 2004-2008.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
26	21-Jun	258	7,919	98	70	906	42	4	168
27	28-Jun	622	10,280	258	510	11,215	65	4	180
28	5-Jul	866	8,100	830	2,211	28,434	68	4	177
29	12-Jul	317	2,337	316	816	17,048	36	2	72
30	19-Jul	150	3,454	2,021	3,072	62,958	82	4	232
31	26-Jul	87	2,571	1,662	5,489	45,815	94	3	197
32	2-Aug	24	876	873	6,422	13,100	46	3	138
33	9-Aug	3	531	2,053	4,352	3,961	35	3	105
34	16-Aug	7	465	2,387	3,254	2,797	41	3	123
35	23-Aug	5	92	2,194	712	753	37	3	111
36	30-Aug	29	36	4,038	70	1,107	22	3	66
37	6-Sep	31	15	4,146	32	350	40	3	120
38	13-Sep	7	3	6,564	0	1,854	42	3	126
39	20-Sep	0	0	2,141	0	461	31	3	93
40	27-Sep	0	1	1,279	0	41	12	2	24
Total 2009		2,406	36,680	30,860	27,010	190,800	151	47	1,932
1999-2008 Average		8,946	46,582	26,235	39,137	100,783	121	51	2,004
2009 as % of Avg.		27%	79%	118%	69%	189%	125%	92%	96%



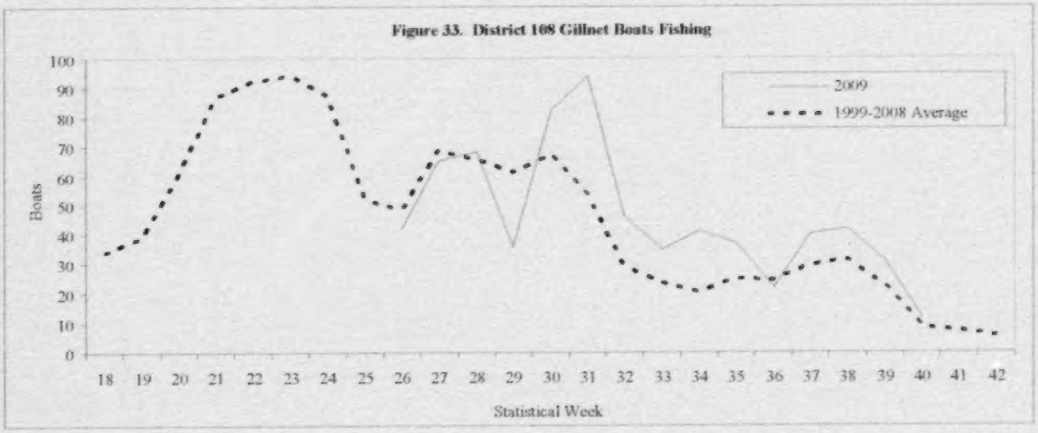


Figure 33. District 108 Gillnet Boats Fishing
Boats
100
90
80
70
60
50
40
30
20
10
0
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Statistical Week
2009
1999-2008 Average

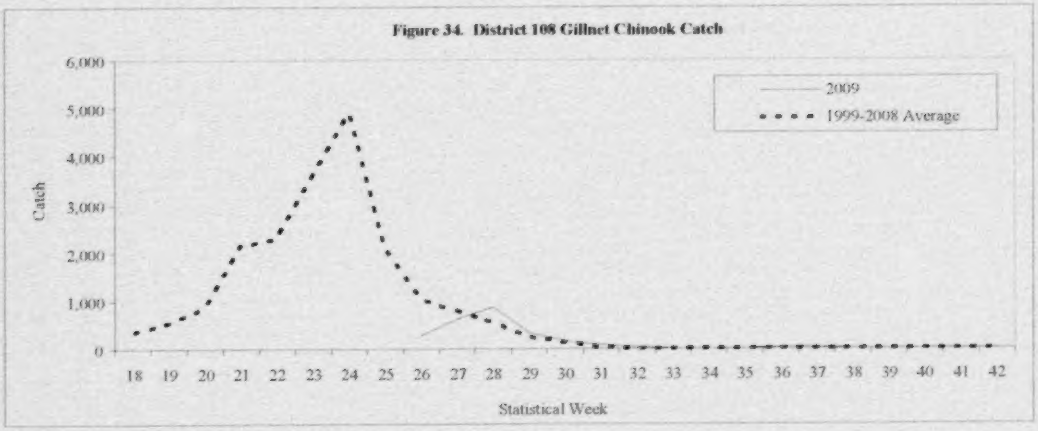


Figure 34. District 108 Gillnet Chinook Catch
Catch
6,000
5,000
4,000
3,000
2,000
1,000
0
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Statistical Week
2009
1999-2008 Average

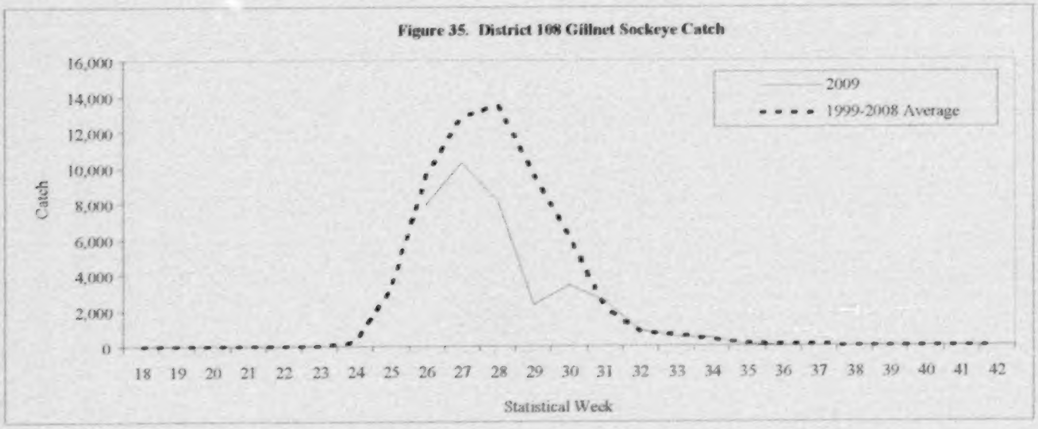


Figure 35. District 108 Gillnet Sockeye Catch
Catch
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
Statistical Week
2009
1999-2008 Average

Figure 36. District 108 Gillnet Coho Catch

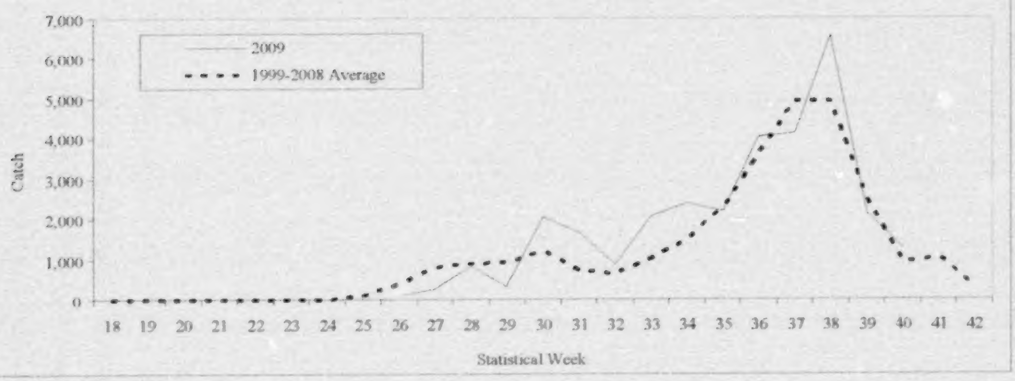


Figure 37. District 108 Gillnet Pink Catch

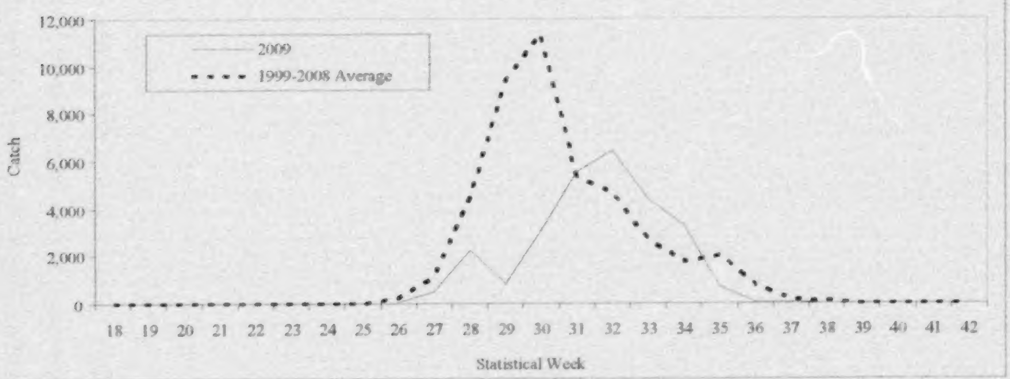
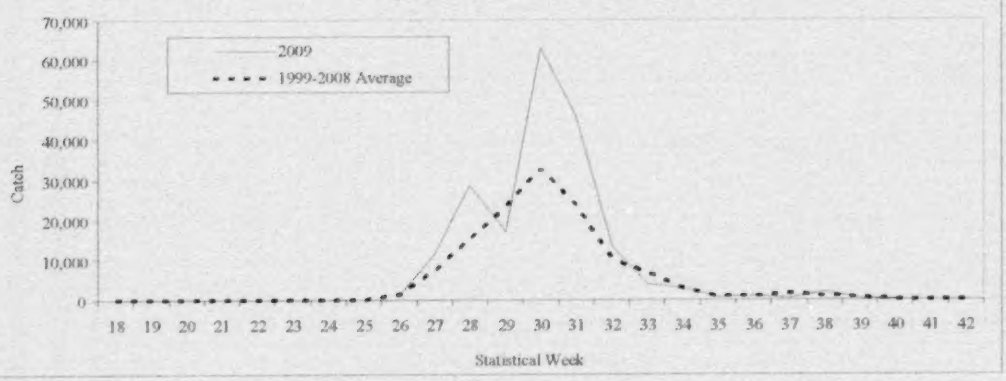


Figure 38. District 108 Gillnet Chum Catch



Harvest sharing of Stikine sockeye stocks is based on inseason abundance forecasts produced by the Stikine Management Model (SMM) (Table 44). The marine and inriver catches of planted Tuya fish were estimated from analysis of otoliths for thermal marks. Egg diameter analysis of inriver catches was used to estimate the relative abundances of Tahltan and Mainstem fish to Tuya fish in the Stikine River. The historical average weekly stock compositions were used to estimate the harvests of Tahltan and Mainstem Stikine sockeye salmon stocks in marine harvests. Based on these analyses and ratios, the 2009 Sumner Strait fishery (subdistricts 106-41 & 42) harvested 33,425 Stikine sockeye salmon, 41% of the total sockeye harvest in those subdistricts. The Clarence Strait fishery (subdistrict 106-30) harvested an estimated 2,000 Stikine sockeye salmon, 7% of the harvest in that subdistrict. It is estimated that the 2009 District 108 fishery harvested 28,726 Stikine fish, 78% of the total sockeye harvest in that area.

A total of 80 Stikine River subsistence fishing permits were issued and current estimate of the sockeye subsistence harvest for the Stikine River is 723 fish; the subsistence cap for the river is 600 sockeye salmon. An estimated 64,000 Stikine sockeye salmon were harvested in commercial gillnet fisheries from both districts, representing 43% of the total sockeye catch. Of these Stikine sockeye salmon, an estimated 28,100 fish were produced by the joint U.S./Canada fry-planting projects on the Stikine River.

Preliminary postseason run reconstruction estimates (Table 45) will differ from the inseason management model estimates (Table 44).

Table 44 Weekly Forecasts of Run Size and Total Allowable Catch for Stikine River Sockeye Salmon as Determined In-Season by the Stikine Management Model, 2009

Stat.	Start	Forecast	TAC			Cumulative Catches	
Week	Date	Run Size	Total	U.S.	Canada	U.S.	Canada
25	14-Jun	274,500	206,107	103,054	103,054	4,863	
26	21-Jun	274,500	206,107	103,054	103,054	19,977	2,463
27	28-Jun	234,440	171,881	85,941	85,941	39,607	23,677
28	05-Jul	231,315	168,343	84,172	84,172	51,278	30,435
29	12-Jul	190,622	126,418	63,209	63,209	55,069	38,263
30	19-Jul	186,393	121,943	60,972	60,972	57,398	41,803
31	26-Jul	176,463	112,116	56,058	56,058	60,692	43,533
32	02-Aug	185,437	120,284	60,142	60,142	62,218	44,829
33	09-Aug	179,467	115,105	57,553	57,553	63,485	45,390
34	16-Aug	181,821	117,970	58,985	58,985		45,765
Preliminary end-of-season estimate		178,736	112,047	56,024	56,024	64,579	47,860

[a] Does not include test fishery catches

Table 45 Preliminary Post Season Stikine River Sockeye Salmon Run Reconstruction, 2009

					Tahltan				
	Tahltan	Mainstem	Total	Tuya	Wild	Hatchery	Total Stikine	All Planted	All Wild
Escapementa	30,673	22,220	52,893	12,063	21,318	9,355	64,956	21,419	43,537
ESSR Catchb	0		0	0			0	0	0
Biological Samples	350		350	280	243	107	630	387	243
Broodstock	3,011		3,011		2,093	918	3,011	918	2,093
Natural Spawning	27,312	22,220	49,532		18,982	8,330	49,532	8,330	41,201
Excessc				11,783			11,783	11,783	
Canadian Harvest									
Aboriginal	3,263	132	3,395	1,753	2,231	1,032	5,148	2,785	2,363
Upper Commercial	890	33	923	428	615	275	1,351	703	648
Lower Commercial	19,807	10,060	29,867	9,539	13,683	6,124	39,406	15,663	23,743
Tuya Test	543	455	999	956	304	239	1,955	1,195	760
Total	24,503	10,680	35,183	12,676	16,833	7,670	47,860	20,346	27,513
% Harvest	42.2%	43.9%	42.7%	42.2%					
Test Fishery Catch	387	708	1,096	246	276	111	1,342	357	985
Inriver Run	55,563	33,608	89,172	24,986	38,427	17,136	114,157	42,122	72,036
U.S. Harvesta									
106-41&42	20,885	2,036	22,921	10,504	13,947	6,938	33,425	17,442	15,983
106-30	1,116	767	1,883	117	947	169	2,000	286	1,714
108	11,328	10,743	22,071	6,655	7,768	3,560	28,726	10,215	18,511
Subsistence	208	126	334	94	144	64	428	158	270
Total	33,537	13,672	47,209	17,370	22,806	10,731	64,579	28,101	36,478
% Harvest	57.8%	56.1%	57.3%	57.8%					
Test Fishery Catch	0	0	0	0	0	0	0	0	0
Total Run	89,100	47,280	136,381	42,355	61,233	27,867	178,736	70,223	108,513
Escapement Goal	24,000	30,000	54,000	0					
Terminal Excessd				11,593					
Total TAC	64,713	16,572	81,285	30,762			112,047		
Total Harveste	58,427	25,061	83,488	30,292			113780.17	48804.11	64976.06
Canada TAC	32,357	8,286	40,642	15,381			56,024		
Actual Catchfg	24,503	10,680	35,183	12,676			47,860	20,346	27,513
% of total TAC	75.7%	128.9%	86.6%				85.4%		
U.S. TAC	32,357	8,286	40,642	15,381			56,024		
Actual Catch fg	33,537	13,672	47,209	17,370			64,579	28,101	36,478
% of total TAC	103.6%	165.0%	116.2%				115.3%		

a Escapement into terminal and spawning areas from traditional fisheries.

b Catch allowed in terminal areas under the Excess Salmon to Spawning Requirement license.

c Fish returning to the Tuya system are not able to access the lake where they originated due to velocity barriers.

d The number of Tuya fish that should be passed through traditional fisheries in order to harvest the Tuya stock at the same rate as the Tahltan stock to ensure adequate spawning escapement for Tahltan fish.

e Includes traditional, ESSR, and test fishery catches.

f Does not include ESSR or test fishery catches.

g U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than in the listed fisheries.

A number of stocks are known to contribute to the Wrangell/Petersburg area sport Chinook salmon fishery, including those from the Taku, Unuk, Chickamin, and King Salmon rivers as well as local hatchery stocks. But the major contributor of large, wild mature fish is believed to be the Stikine River.

Preliminary estimates indicate that approximately 761 Chinook harvested in the Wrangell/Petersburg sport fishery were of Stikine River origin during 2009 (based on coded wire tag analysis and maturity data collected from onsite surveys).

Taku River Area Fisheries

Table 46 Weekly Salmon Harvest in the Alaskan District 111 Traditional Commercial Drift Gillnet Fishery, 2009

Stat. Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
20	10-May	536	0	0	0	0	45	1	45
21	17-May	253	2	0	0	4	43	1	43
22	24-May	1,422	2	0	0	126	55	2	110
23	31-May	1,703	12	0	1	243	64	2	128
24	7-Jun	789	50	0	0	293	64	1	64
25	14-Jun		Fishery Closed						
26	21-Jun	426	4,045	16	67	6,328	59	3	177
27	28-Jun	261	3,704	118	1,814	32,495	56	3	168
28	5-Jul	114	6,704	316	3,579	216,665	100	3	300
29	12-Jul	121	13,830	2,101	10,015	385,714	158	3	474
30	19-Jul	33	11,242	1,945	8,070	152,174	179	3	537
31	26-Jul	22	11,036	946	8,403	77,960	89	3	267
32	2-Aug	6	6,398	974	8,719	31,453	79	3	237
33	9-Aug	0	2,924	716	13,493	11,647	59	2	118
34	16-Aug	0	840	959	2,145	553	17	2	34
35	23-Aug	1	456	4,297	68	346	46	3	138
36	30-Aug	3	415	12,522	14	940	54	3	162
37	6-Sep	0	90	4,809	3	983	55	4	220
38	13-Sep	2	32	3,786	0	177	28	4	112
39	20-Sep	0	8	1,929	0	74	16	4	64
40	27-Sep	2	0	1,153	0	20	9	4	36
41	4-Oct	Confidential information, less than 3 boats fishing.						4	
Total		5,694	61,790	36,615	56,391	918,195	218	58	3,437
1999-2008 Average		4,574	152,129	30,224	108,239	420,468	175	60	3,535
2009 % of Average		124%	41%	121%	52%	218%	125%	97%	97%

In 2009 the U.S. and Canada agreed to a revised escapement goal range for large Taku River Chinook salmon of 19,000 to 36,000 fish, with a point goal of 25,500 large Chinook salmon. The preseason forecast of terminal run size was 50,164 while the first inseason estimate of Taku terminal run size, generated in mid-May, was 47,510 large Chinook salmon. Using the initial inseason estimate the U.S. allowed catch was 7,781 large Taku Chinook salmon out of a total allowable catch of 15,610. The directed District 111 Chinook salmon gillnet fishery began with a one day opening on May 11 with 45 boats harvesting 536 Chinook salmon. Catch in the second opening beginning May 18 dropped to 253 with 43 boats fishing. Increasing catch rates and escapement levels to the Taku River resulted in two day fisheries in weeks 22 and 23 with respective catches of 1,422 by 55 boats and 1,703 by 64 boats. The third inseason estimate of run strength declined to 40,000 large Chinook salmon resulting in the fishery being open only one day in week 24 when 64 boats caught 789 large Chinook salmon. In early June flooding on the Taku River resulted in few fish being counted or captured in ADF&G's stock assessment fishwheels. In addition, the inseason terminal run size estimate declined to 37,400. This new projection would allow a U.S. cumulative harvest of 3,800 including the U.S. baseline harvest and, since the cumulative catch to date was approximately 4,700, resulted in the fishery being closed in week 25 which was the final week of the directed Chinook salmon fishery.

The first opening of the directed sockeye and chum salmon fishery in District 111 was Sunday with the portion north of Jaw Point closed and maximum mesh size of six inches to conserve Chinook salmon returning to the Taku River. The wild sockeye return to the Taku River was expected to be slightly below average. The Douglas Island Pink and Chum (DIPAC) hatchery forecast an enhanced sockeye salmon return of 228,000 fish. The initial opening was for three days with a below average 59 boats catching below average numbers of all species. Area and mesh restrictions continued in the second opening with a below average harvest due to reduced effort levels although catch rates for chum salmon were above average.

In the third directed sockeye and chum opening beginning July 5 Taku Inlet was only open for two days to conserve Taku River sockeye salmon. The Stephens Passage portion of the district was open 3 days with a six inch minimum mesh restriction south of Circle Point to allow chum salmon harvest while conserving wild Port Snettisham sockeye. Fishing effort increased to 100 boats largely due to the abundance of hatchery chum salmon with the catch of 216,000 representing one of the largest single weekly harvests in the district. Coho harvest rates were strong for the timing and while sockeye harvest rates were below historical averages the escapement numbers to the Taku River were improving.

Weekly openings of two days for Taku Inlet, and three days for Stephens Passage with a minimum mesh size of six inches south of Circle Point to conserve wild Taku and Port Snettisham sockeye stocks, continued through the end of July. Above average effort of up to 179 boats fishing weekly caught record numbers of hatchery chum salmon with a cumulative catch through the end of July of 872,000. July coho catches were above average while sockeye catches were about a third and pink catches about half the ten year average. While sockeye catches in the Canyon Island fishwheels were below average in late July the escapement was on track to achieve the 75,000 fish escapement goal and wild sockeye began showing up at the Crescent Lake sonar site and Speel Lake weir in Port Snettisham. The number of boats fishing in the district declined from a seasonal high of 179 in the July 19 opening to 89 in the July 26 opening.

Due to an anticipated poor sockeye return to Tatsamenie Lake, a contributor to the Taku Sockeye run, the U.S. and Canada agreed to limit fishing time in Taku Inlet to two days a week in early August while these fish transited the area. The six-inch minimum mesh size restriction south of Circle Point in Stephens Passage to target enhanced chum salmon while conserving wild sockeye bound for Port Snettisham continued in early August. Catches of all species except chum salmon were less than average in early August and the decline in the number of boats fishing continued. In early August the Taku River sockeye run was on track to achieve the lower end of the escapement goal range while escapements into Speel Lake were close to the long term average. However, the total Crescent Lake sonar count in early August was the lowest since 2005 and the run timing of enhanced sockeye salmon to DIPAC's Snettisham hatchery appeared to be about 10 days late. Pink salmon were developing well in streams that had good water levels but the gillnet catch remained well below average due to both the below average size of the pink salmon and declining effort.

In mid-August District 111 was open for two days a week. The number of boats fishing weekly fell to about 50 and catches were below average except for chum salmon. It appeared that the Taku River sockeye escapement goal of 75,000 would be reached. Sockeye escapements into Speel Lake declined with a cumulative count of 2,000 fish, 57% of the long term average. Crescent Lake sonar counts remained poor, and the return of enhanced sockeye to Snettisham hatchery continued to be below expectations. Pink salmon escapements were developing adequately although the catch in the Canyon Island fishwheels was only 60% of the odd year average. Chum salmon catches were declining with the cumulative catch of over 900,000 setting a new record for the fishery. While management focus traditionally shifts to coho in mid-August the continued weak sockeye returns resulted in weekly openings limited to two days to conserve late returning sockeye.

Coho catch-per-unit-effort (CPUE) increased to two and half times average in late August. Sockeye escapement to Speel and Crescent lakes continued to be below average and the return of enhanced sockeye continued to be lower than anticipated. With good coho CPUE in both the fishery and the Canyon Island fishwheels, most of the sockeye run already through marine fishing areas, and adequate pink salmon escapements in the area, the fishery was open for three days a week in late August with an increasing number of boats fishing.

District 111 was open four days a week through the end of September as coho catches and the number of boats fishing declined and catch of other species during this period were insignificant. A total of 5,694 Chinook, 61,790 sockeye, 36,615 coho, 56,391 pink, and 918,195 chum salmon were harvested (Table 46). Due to the directed Chinook salmon fishery, only the third such fishery in recent years, the Chinook salmon catch was 124% above the ten-year average. Seasonal coho, and chum catches were both above the ten-year average at 121%, and 218% respectively. Sockeye and pink salmon catches were 41% and 52% of the ten-year average. Sockeye abundance was below average for both the Taku River and Port Snettisham. Coho returning to the Taku River were abundant with good catches in the Canyon Island fishwheels and excellent in-river escapement. The number of boats that fished in the district during the season was an above average 218. The fishery was open for a below average total of 58 days. Preliminary Speel Lake sockeye escapement was 3,600 fish. The Speel Arm Terminal Harvest Area (THA) was not open to commercial fishing in 2009.

District 111 was open for a below average number of days until September (Figure 39).

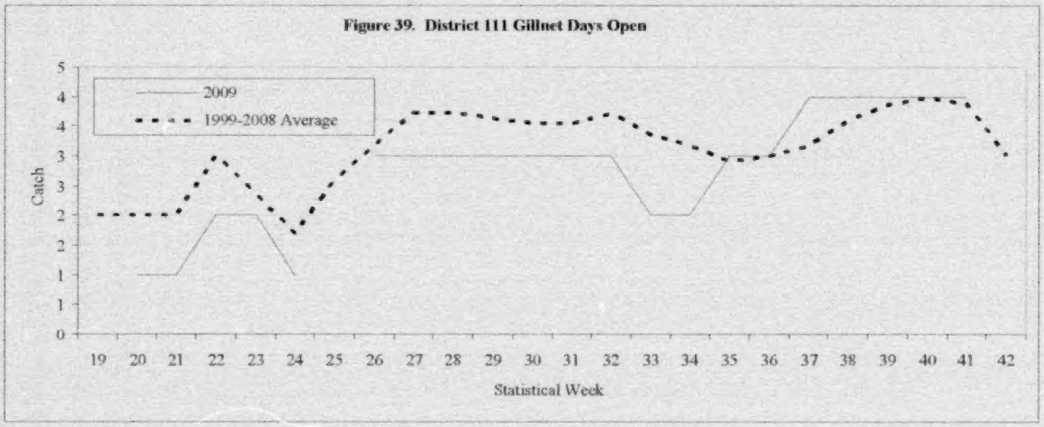
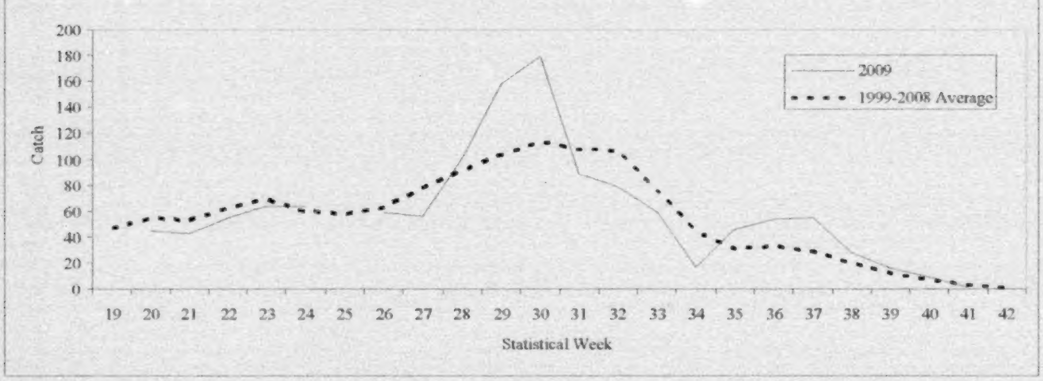


Figure 39. District 111 Gillnet Days Open

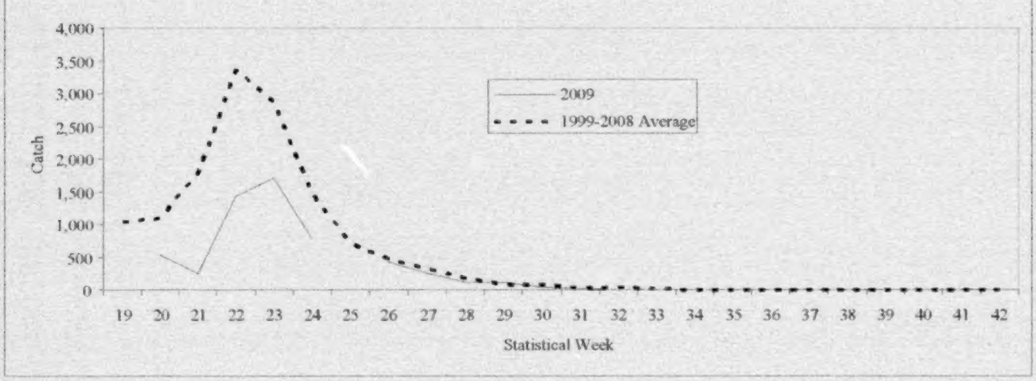
The number of boats fishing was about average during the directed Chinook salmon fishery (weeks 20-24). The fishery was closed in week 25. The number of boats fishing was above average in mid-July and again in September (Figure 40).

Figure 40. District 111 Gillnet Boats Fishing



The Chinook harvest of 4,703 during the directed Chinook salmon portion of the fishery was below the average catch in the two other years (2005 and 2006) the fishery was open (Figure 41). The Chinook catch of 991 during the directed sockeye portion of the fishery was about average. Overall, the total Chinook catch was above the ten-year average because the directed Chinook fishery has only been open in 3 years under the agreement reached in 2004. In the 2009 District 111 drift gillnet fishery approximately 97% of the Chinook salmon were harvested from Taku Inlet, and 3% were harvested from Stephens Passage. The preliminary 2009 estimate of large Taku River Chinook salmon escapement is 20,762 fish, 53% of the ten-year (1999-2008) average of 38,820. The revised escapement goal range for Taku River Chinook is from 19,000 to 36,000 large Chinook salmon.

Figure 41. District 111 Gillnet Chinook Catch



The total 2009 Taku River sockeye salmon run was estimated at 128,289 fish (Table 47). Based on the escapement goal midpoint of 75,000 wild Taku River sockeye, the TAC was 53,290 fish. The U.S. TAC was 42,632 Taku River sockeye (80% of the TAC). It is estimated that the total U.S. harvest of Taku River sockeye salmon was 45,280 fish, 85% of the TAC. Sockeye salmon produced from a joint U.S./Canada fry-planting program at Tatsamenie Lake contributed an estimated 259 fish, or .06% of the total US sockeye catch. An estimated 12,683 Snettisham Hatchery sockeye salmon were harvested in common property traditional fisheries in District 111.

The preliminary 2009 estimated above-border in-river wild Taku River sockeye run, based on mark-recapture estimates at Canyon Island, was 81,983 wild sockeye plus 1,025 salmon from Tatsamenie fry plants, for a total of 83,008 sockeye salmon. Subtracting the Canadian catch of 11,087 wild sockeye salmon (in addition to an estimated harvest of 81 planted Tatsamenie fish) the escapement was 70,896 wild fish, with an additional 944 enhanced fish for a total of 71,840 sockeye escaped past all fisheries, approximately equal to the lower bound of the 71,000 - 80,000 fish escapement goal range. Because of low tag recoveries in the inriver test fishery during weeks 23-25 and 35-40, Canyon Island fish wheel CPUE was used to expand the sockeye salmon inriver run estimate. Preliminary 2009 Taku River sockeye escapements for enumerated systems were approximately: Trapper Lake weir count of 5,552 (spawning escapement 5,443); Kuthai Lake 1,442; Tatsamenie Lake weir count of 2,032 (spawning escapement 1,232), and King Salmon Lake 55 fish. Escapements of sockeye salmon to Port Snettisham systems were poor, with 3,307 counted through a weir at Speel Lake, below the lower bound of the 4,000-13,000 fish escapement goal. The Crescent Lake sonar reported a net upstream count of approximately 1,256 fish, which was not separable by species. It is known that all species of Pacific salmon do enter Crescent Lake; however sockeye is the predominant species.

Table 47 Preliminary Taku Sockeye Salmon Run Reconstruction, 2009. Estimates do not include spawinging escapements below the U.S./Canada border.

		Total	Taku Wild	Planted
Escapement		71,840	70,896	944
Canadian Harvest				
Commercial		10,888	10,809	79
Food Fishery		106	105	1
Total		10,994	10,914	80
Test Fishery Catch		174	173	1
Above Border Run		83,008	81,983	1,025
U.S. Harvest a				
District 111		44,451	44,198	253
Personal Use		829	824	6
Total		45,280	45,022	259
Test Fishery Catch		0		
Total Run		128,289	127,006	1,284
Taku Harvest Plan				
	Total Wild Run	127,006		
	Escapement Goal	75,000		
	Wild AC	52,006		
	Planted Run	1,284		
	TAC All Sockeye	53,290		
Canada				
	Harvest Share	20%		
	Base Allowable	10,658		
	Surplus Allowable	0		
	Total TAC	10,658		
U.S.				
	Harvest Share	80%		
	Total TAC	42,632		

[a] U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than the listed fisheries.

The 2009 sockeye catch in the District 111 drift gillnet fishery was 61,790 which is 41% of the 1999-2008 average. Sockeye catches were below average throughout the season (Figure 42).

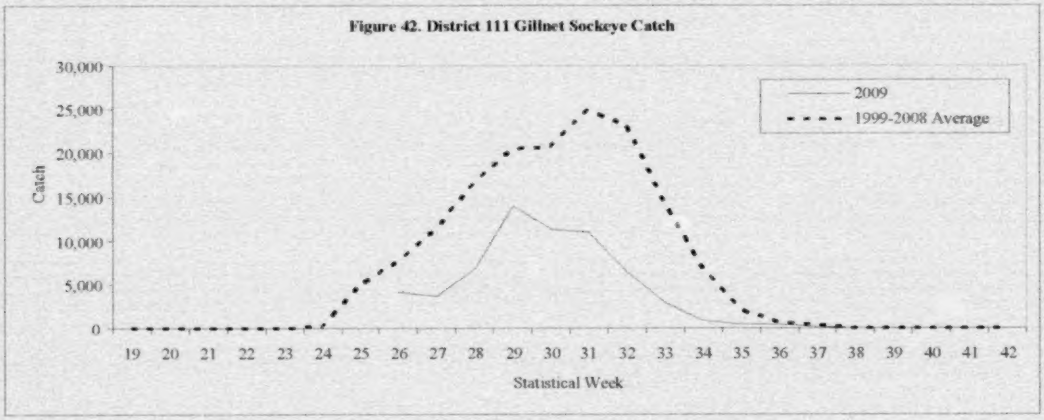


Figure 42. District 111 Gillnet Sockeye Catch

Coho stocks harvested in District 111 include runs to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaskan hatcheries. The 2009 coho harvest of 36,615 fish was 121% of the 10-year (1999-2008) average (Figure 43). Approximately 88% of the coho were harvested in Taku Inlet, above the ten-year average of 84%); and 12% were harvested from Stephens Passage. Alaskan hatchery coho salmon contributed 2,450 fish or 7% of the District 111 harvest. Weekly coho harvests were above average in early July and from late August through the end of the season. The week 36 harvest of 12,522 fish was the peak week of coho harvest for the 2009 drift gillnet fishery. For most of the season, weekly estimates of Taku River coho abundance indicated an above average run size. The 2009 inriver abundance estimate of coho salmon above Canyon Island was 113,716, 96% of the ten-year (1999-2008) average of 118,775. The cumulative Canadian coho harvest was approximately 9,395 fish. The coho escapement for the Taku River was estimated to be 104,320 fish, surpassing the minimum in-river goal of 38,000.

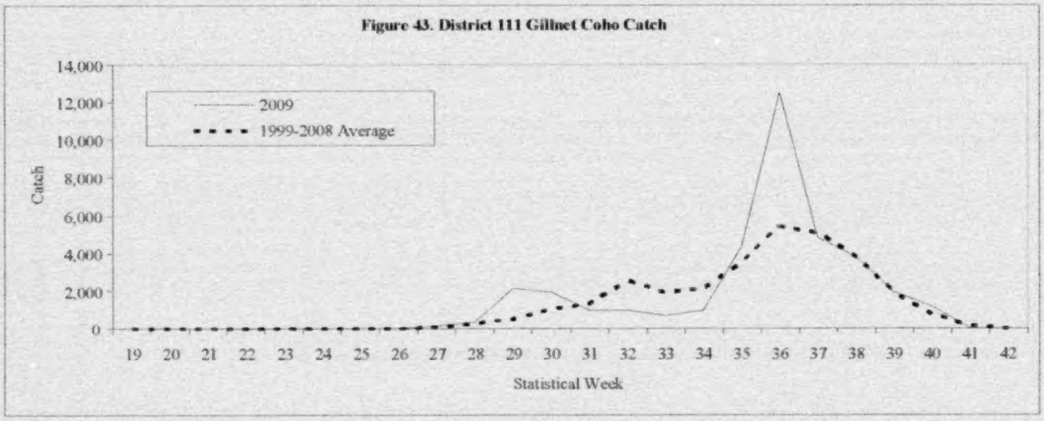
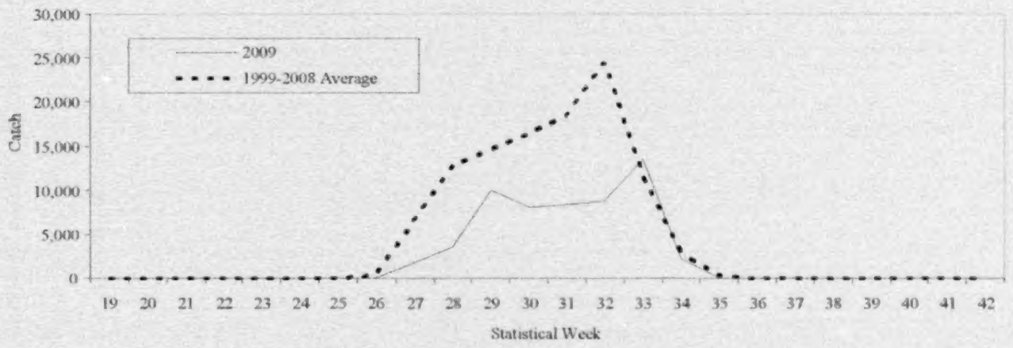


Figure 43. District 111 Gillnet Coho Catch

The 2009 District 111 pink salmon harvest of 56,391 fish was 52% of the ten-year (1999-2008) average (Figure 44). The 2009 pink salmon escapement to the Taku River was unknown; however, the number of pink salmon passing through the fish wheels at Canyon Island is used as an index of escapement. The 2007 (parent year) Canyon Island pink salmon fish wheel catch was 12,405 fish. The 2009 Canyon Island pink salmon fish wheel catch of 9,234 was 56% of the 1989-2007 odd-year average of 16,571.

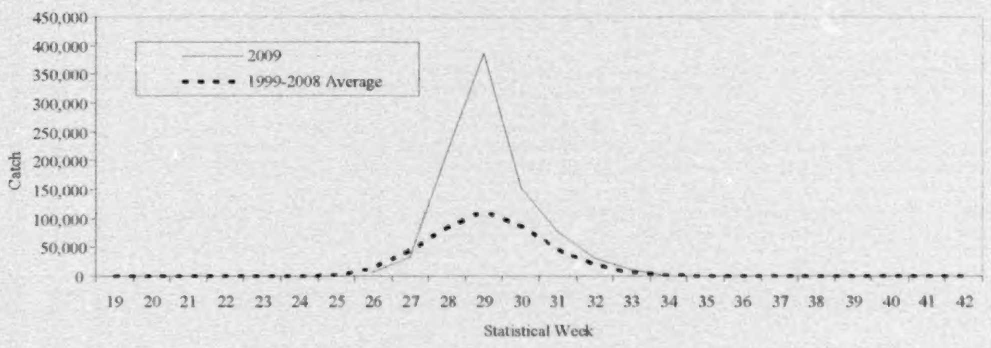
Figure 44. District 111 Gillnet Pink Catch



The catch of 918,195 chum salmon was 218% of the ten-year (1999-2008) average, and was comprised almost entirely of summer run fish (99%) (Figure 45). The summer chum run is considered to last through mid-August (week 33) and is comprised mostly of domestic hatchery fish and small numbers of wild stocks. Chum salmon returning both to DIPAC hatcheries in Gastineau Channel and to the DIPAC remote release site at Limestone Inlet contributed a major portion of the harvest, but quantitative contribution estimates are not available. Approximately 62% of the District 111 chum harvest was made in Taku Inlet, and 38% in Stephens Passage.

The harvest of 3,093 fall chum salmon (i.e. chum salmon caught after week 33) was 74% of the ten-year (1999-2008) average. Most of these chums are probably of wild Taku and Whiting River origin. Escapement numbers to the Taku River chum are unknown; however, the numbers of fall chum passing through the fish wheels at Canyon Island were used as an index of escapement. The index number for 2009, 236 chum salmon is 73% of the 1999-2008 average.

Figure 45. District 111 Gillnet Chum Catch



Several other fisheries in the Juneau area harvested Taku River salmon stocks in 2009. Personal use permits were used to harvest an estimated 829 Taku River sockeye salmon. A number of stocks are known to contribute to the Juneau area sport fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of large, wild mature fish was believed to be the Taku River. Preliminary estimates indicate that approximately 1,287 of the Chinook harvested in the Juneau sport fishery were of Taku River origin (based on coded wire tag analysis and maturity data from onsite survey data).

Transboundary River Joint Enhancement Activities

The transport of sockeye fry back to the Canadian lakes took place between May 30 and June 14, 2009. This season again saw a late ice-out on the Canadian lakes. Slightly over 6 million fry were released in the Canadian Tahltan, Tuya, and Tatsamenie Lakes. Fry transported were released directly from the aircraft into the lakes with one exception. An extended rearing project in shore-based raceways at Tatsamenie Lake was funded by the Pacific Salmon Commission Northern Fund. For that project there were 110,000 fry which were reared until late July before release.

The Tatsamenie Lake extended rearing project involved using water from an upland fish free water source. Growth and survival was good; somewhat surprisingly the majority of the released fish left the lake within weeks of release in a condition that indicated they had smolted. The fish had a unique thermal mark and the full success of the program will not be known until the adults return.

There were 3 incubators of brood year 2008 fry lost to the IHN virus this season; two from Tahltan Lake resulting in a loss of 548,000 fry and one from Tatsamenie Lake with a loss of 260,000 fry.

Table 48 Summary of Numbers and Survival Rates of Brood Year 2008 Sockeye Salmon Fry Released May-June 2009. Fish were raised at Snettisham Hatchery as part of the Transboundary River Salmon Enhancement Project.

Broodstock	Release Site	Number of Trips	Survival Rate to Eyed Stage	Survival Rate to Release	Number Released
Tahltan	Tahltan	3	84.8%	58.2%	1,395,000
Tahltan	Tuya	2	85.4%	84.2%	832,000
Tatsamenie	Tatsamenie	8	89.2%	79.0%	3,873,000
	Average/Totals	13			5,951,761

Brood Year 2009 Activities

Brood year 2009 TBR egg takes were initiated on September 2nd at Tahltan Lake, and September 21st at Tatsamenie Lake. An estimated total of 5.6 million green eggs were collected from the two donor lakes. Due to lowered adult escapement into Little Trapper Lake, approximately 100,000 eggs were collected from this stock; those eggs were planted in Tunjony Creek, a tributary of Big Trapper Lake.

Tahltan Lake egg takes were completed on September 24th with an estimated 4.47 million eggs. The receipt of two lots of Tahltan eggs was delayed by 2 days, and three others by 1 day, due to unfavorable weather conditions; there were 12 lots in aggregate. Tatsamenie Lake egg takes were completed on October 17th with an estimated 1.22 million eggs. The receipt of one lot of Tatsamenie eggs was delayed by 2 days, also due to unfavorable weather conditions; there were 4 lots in aggregate at Tatsamenie Lake.

During the 2009 season the ADFG thermal mark lab processed 19,742 sockeye otoliths collected by ADFG and DFO staff as part of the U.S./Canada fry-planting evaluation program. These collections came from commercial and test fisheries in U.S. waters and in Canadian fisheries on the Taku and Stikine Rivers over a 14-week period. In addition, several escapement samples were examined. The laboratory provided estimates on hatchery contributions for 100 distinct sampling collections. Estimates of the percentage of hatchery fish contributed to commercial fishery catches were provided to ADF&G and DFO fishery managers 24 to 48 hours after samples arrived at the lab.

Alsek River Area Fisheries

Although harvest sharing arrangements of Alsek salmon stocks between Canada and the U.S. have not been specified, Annex IV of the Pacific Salmon Treaty does call for a cooperative attempt to rebuild depressed Chinook and early-run sockeye stocks. The Canadian DFO preseason forecasts for salmon in the Alsek River were for above average returns for both Chinook and sockeye salmon based on parent-year spawning escapements, commercial catch trends, and observations of rearing conditions. The Alsek test fishery conducted by ADF&G from 2005 through 2008 under auspices of the Pacific Salmon Commission was not conducted in 2009. The Alsek River commercial fishery opened on the first Sunday in June, statistical week 24 (June 7) for 24 hours with 14 boats catching 216 Chinook and 1,091 sockeye salmon. For the second weekly opening of one day the Alsek was at flood stage which may have effected fishing; 14 boats caught 132 Chinook and 348 sockeye. The fishery was open two days a week for the last two weeks in June; in week 26, 12 boats caught 200 Chinook and 2,210 sockeye while in week 27 14 boats 47 Chinook and 3,628 sockeye. In July catches of Chinook dropped from a 5 fish a week initially to zero by July 19. The peak sockeye catch occurred in a two day opening beginning June 28 (week 27) when 14 boats harvested 3,628 sockeye but both sockeye catches and the number of boats fishing dropped rapidly after this. In August fewer than three boats fished weekly in the first four weeks and catch information is confidential; heavy mid-month flooding also reduced effort dramatically. Effort remained low in the September coho with a maximum of five boats participating in weekly 3-day openings; the highest coho catch was in the first week at 1,538 and declining to 235 by the end of the month. The fishery was open in October but nobody fished.

The 2009 Dry Bay commercial set-gillnet fishery harvested 602 Chinook, 12,906 sockeye, and 3,454 coho salmon. No pink and 20 chum salmon were harvested. The Chinook and coho salmon harvests were above the 1999-2008 average, the sockeye salmon harvest was below average. The total number of boats that fished during the season was a below average 17, the number of fishing days was average at 37. The total effort expended in the fishery was 201 boat-days, which was below average.

Table 49 Weekly Catch and Effort in the U.S. Commercial Fishery in the Alsek River, 2009.

							Effort		
Statistical	Start	Catch							Permit
Week	Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Days
24	7-Jun	216	1,091	0	0	0	14	1	14
25	14-Jun	132	348	0	0	0	14	1	14
26	21-Jun	200	2,210	0	0	0	12	2	24
27	28-Jun	47	3,628	0	0	0	14	2	28
28	5-Jul	5	2,058	0	0	0	12	1	12
29	12-Jul	1	1,041	0	0	0	14	1	14
30	19-Jul	1	1,503	8	0	0	7	2	14
31	26-Jul	0	611	0	0	0	4	2	8
32	2-Aug	Confidential Information, less than three boats fishing						2	
33	9-Aug	Confidential Information, less than three boats fishing						3	
34	16-Aug	Not Fished						2	
35	23-Aug	Confidential Information, less than three boats fishing						3	
36	30-Aug	0	24	358	0	0	5	3	15
37	6-Sep	0	30	1,538	0	15	5	3	15
38	13-Sep	0	3	905	0	2	3	3	9
39	20-Sep	0	0	380	0	1	4	3	12
40	27-Sep	0	0	235	0	1	3	3	9
41-42	17-Oct	Not	Fished					6	
Total[a]		602	12,906	3,454	0	20	17	43	201
1999-2008 Avg.		532	14,963	3,042	2	27	19	37	242
2009 as % of Avg.		113%	86%	114%	0%	74%	89%	95%	83%

Southeast Alaska Chinook Salmon Fishery

All Gear Harvest

The 2009 Chinook salmon target harvest level was determined using the preseason abundance index of 1.33 generated with the CTC model. The corresponding Alaskan all-gear Treaty Quota of 218,789 Chinook salmon was identified using Table 1 of Chapter 3. The preliminary estimated total Chinook salmon harvest by all Southeast Alaska commercial fisheries was 229,781 fish, the preliminary sport fish harvest was 42,686, for an all gear total catch of 272,467 (Table 51). The preliminary Treaty catch was 214,451 fish, 2.0% below the target quota of 218,789.

Table 50 Preliminary Estmated All-Gear Chinook Salmon Catch in 2009.

2009 Preliminary Estimated All-Gear Chinook Salmon Catches								
Gear	**Total Catch**	**AK Hatchery Catch**	**Wild Terminal Exclusion**	**AK Hatchery AddOn**	**Treaty Catch**	**Quota/ Allocation**	**O/U**	**% O/U**
Troll	175,644	20,523	0	16,663	158,981	161,629	-2,648	-1.6%
Purse Seine	29,012	15,973	0	15,430	13,582	9,408	4,174	44.4%
Drift Gillnet	23,592	12,817	4,019	11,703	7,870	6,345	1,525	24.0%
SetNet	1,533	0	0	0	1,533	1,000	533	53.3%
Total Net	54,137	28,790	4,019	27,133	22,985	16,753	6,232	37.2%
Total All Commercial Gear	**229,781**	**49,313**	**4,019**	**43,796**	**181,966**	**178,382**	**3,584**	**2.0%**
Sport	**42,686**	**12,075**	**0**	**10,201**	**32,485**	**40,407**	**-7,922**	**-19.6%**
Total All Gear	***272,467***	***61,388***	***4,019***	***53,997***	***214,451***	***218,789***	***-4,338***	***-2.0%***

Table 51 Chinook all-gear harvests[1] in Southeast Alaska, 1987 to 2009, and deviation from the ceiling for years for which there were ceilings. Harvests are in thousands.

Year	Total Harvest	Add-on and Exclusion Harvest	Target Treaty Harvest	Treaty Harvest	Deviation Number	Deviation Percent
1987	282.4	17.1	263.0	265.3	2.3	0.9%
1988	279.3	22.5	263.0	256.8	-7.8	-3.0%
1989	291.0	21.5	263.0	269.5	6.5	2.5%
1990	366.9	45.9	302.0	321.0	19.0	6.3%
1991	359.5	61.5	273.0	298.0	25.0	9.2%
1992	258.8	36.8	227.4	222.0	-5.4	-2.4%
1993	304.1	32.9	263.0	271.2	8.2	3.1%
1994	264.4	29.2	240.0	235.2	-4.8	-2.0%
1995	235.7	58.8		176.9		
1996	236.3	81.3		155.0		
1997	343.0	56.3		286.7		
1998	270.6	27.4	260.0	243.2	-16.8	-6.5%
1999	251.0	52.2	184.2	198.8	14.6	7.9%
2000	263.3	76.8	178.5	186.5	8.0	4.5%
2001	265.7	78.8	250.3	186.9	-63.4	-25.3%
2002	426.5	69.4	371.9	357.1	-14.8	-4.0%
2003	439.4	59.3	439.6	380.2	-59.5	-13.5%
2004	506.2	77.4	418.3	428.8	10.4	2.5%
2005	469.6	108.9	416.4	387.7	0.3	0.1%
2006	438.5	79.9	354.5	358.6	4.1	1.1%
2007	406.9	78.5	259.2	328.4	69.2	26.7%
2008	247.3	75.0	170.0	172.3	19.5	12.7%
2009[1]	272.5	58.0	218.8	214.5	-4.3	-2.0%

[1] The actual target harvest and deviation cannot be calculated until the CTC completes the postseason calibration.

[2] The 2007-2009 exclusion harvests are still preliminary pending genetic stock composition estimates of the District 108 and District 111 fisheries.

Troll Fishery

The 2008-2009 winter troll fishery harvested 24,889 Chinook salmon (Table 52) from October 11, 2008 through April 30, 2009, which is 20,111 short of the winter Guideline Harvest Limit. The Alaska hatchery percentage was 11.1% of the harvest, which is close to both the 10 and 20-year average winter fishery contribution. A total of 2,756 fish were from Alaska hatcheries with 2,233 fish counting toward the Alaska hatchery add-on. This was the second lowest winter harvest since 2001. Very poor weather throughout the winter season was likely a major contributor to the low catch. Approximately 40% of the season total catch was taken in the last two weeks of the fishery. A total of 429 permits were fished during the winter fishery, which is the lowest number of permits fished since 2003 and 37 fewer than fished last year.

Spring fisheries opened May 1. The spring troll fisheries are designed to increase the harvest of Alaskan hatchery-produced Chinook salmon and occur primarily in inside waters near hatchery release sites or along migration routes of returning hatchery fish. Alaskan hatchery returns are targeted by allowing trolling in areas where hatchery fish concentrate. Terminal fisheries are a portion of the spring fisheries and occur directly in front of hatcheries or at remote release sites. While there is no ceiling on the number of Chinook salmon harvested in the spring fisheries, the take of Treaty Chinook salmon is limited according to the percentage of the Alaskan hatchery fish taken in the fishery. The combined spring and terminal troll harvest in 2009 was 32,859 Chinook salmon. A total of 38.2% (12,548) of the Chinook salmon landed in these fisheries were from Alaska hatcheries of which 10,201 counted toward the Alaska hatchery add-on.

In the 2009 summer troll season there were two Chinook salmon retention periods. In the first period, July 1-10, a total of 84,575 Chinook were harvested, of which 3,378 (4.0%) were Alaskan hatchery fish, of which 2,737 counted toward the Alaska hatchery add-on resulting in a Treaty catch of 81,838. In the second period, August 17-25, a total of 33,012 Chinook were harvested, of which 1,841 (5.6%) were Alaskan hatchery fish, of which 1,429 counted toward the Alaska hatchery add-on, resulting in a Treaty catch of 31,520. The total summer troll catch was 117,587 Chinook, 5,219 of Alaskan hatchery origin (4,229 counting as Alaska hatchery add-on), for a Treaty catch of 113,358.

The total harvest for the troll fishery in the 2009 accounting year was 175,644 Chinook salmon, with 158,981 counting as Treaty harvest.

Table 52 Preliminary Troll Fishery Chinook Salmon Catch by Season in 2009.

2009 Preliminary Estimated Troll Chinook Catches By Season					
	Total Catch	**AK Hatchery Catch**	**% AK Hatchery**	**AK Hatchery AddOn**	**Treaty Catch**
Winter	24,889	2,756	11.1%	2,233	22,656
Spring (Incl. Term.)	32,859	12,548	38.2%	10,201	22,658
Summer					
1st	84,575	3,378	4.0%	2,737	81,838
2nd	33,012	1,841	5.6%	1,492	31,520
Total	117,587	5,219	4.4%	4,229	113,358
Total Traditional Troll	175,335	20,523	11.7%	16,663	158,672
Annette Is.	309	0	0%	0	309
Total Troll Catch	**175,644**	**20,523**	**11.7%**	**16,663**	**158,981**

Net Fisheries

With the exception of directed gillnet harvests of Chinook in SEAK terminal area regulatory districts 108 and 111 targeting Chinook as provided in the transboundary river agreement (Chapter 1), harvests of Chinook salmon in the net fisheries are primarily incidental to the harvest of other species and only constituted a small fraction (<1.0%) of the total net harvest of all species. The preliminary total drift gillnet catch of large Chinook salmon in 2009 was 23,592 with a Treaty catch of 7,838. The preliminary total purse seine catch was 29,012 with a Treaty catch of 13,524. The preliminary set gillnet catch was 1,533, all of which counted as Treaty fish (Table 50). These numbers are very preliminary at this time due to the ongoing genetic stock composition analysis that has not yet been completed.

The District 111 directed Chinook salmon drift gillnet fishery harvested 4,703 large Chinook salmon between May 10 and June 7. In the District 111 traditional gillnet fishery, which opened June 21, an additional 991 large Chinook were harvested for a season total of 5,694. The directed District 108 Stikine Chinook fishery did not open in 2009 due to low pre-season forecasts and in-season estimates of the return of Stikine River Chinook salmon.

Recreational Fisheries

The 2009 recreational fishery had an estimated preliminary harvest of 42,686 Chinook salmon of which 32,574 counted as Treaty harvest. The final total and Treaty harvest in the sport fishery for 2009 will be available in late fall of 2010. Comparisons of the 2009 recreational fishery harvest with recent years indicate that the preliminary harvest of 42,686 fish is 45% below the recent five-year average and 42% below the recent ten-year average. The freshwater recreational fishery for Chinook salmon 20 inches or greater in length in the Situk River near Yakutat was set to catch and release only during June 23 to July 24 (the peak of the 2009 season)-due to low projected escapement levels for that system as of June 22. As of July 22, escapement of Chinook salmon into the Situk River had reached mid-escapement goals, so beginning July 25 harvest of Chinook salmon 20 inches or greater in length was allowed below the Sitka River weir. Onsite creel surveys indicate very few Chinook salmon (only one harvested fish was encountered in the creel survey) were harvested in the sport fishery in the Situk River after July 25.

The preseason abundance index generated for the SEAK AABM fishery in spring 2009 was 1.33, resulting in a preseason sport allocation of 40,407 treaty fish. Based on this pre-season AI and the SEAK King Salmon Management Plan, the bag and possession limit for residents was two fish 28 inches or over in length and no annual limit, and for non-residents the bag and possession limit was one fish 28 inches or greater in length, with a 3 fish annual limit.

During 2009, genetic samples were collected from 3,379 large Chinook salmon (28 inches of greater in Total Length), 63 genetic samples from small Chinook salmon (under 28 inches in TL) in Terminal Harvest Areas (THAs), and 308 genetic samples were collected from small Chinook salmon harvested outside of THAs.

Southeast Alaska Coho Salmon Fisheries

Attachment B of the June 30, 1999 U.S.-Canada Agreement relating to the Pacific Salmon Treaty specifies provisions for inseason conservation and information sharing for northern boundary coho salmon. In 2009, troll CPUE in Area 6 in the early weeks of the fishery averaged 63.7, which was well-above the highest boundary area conservation trigger of 22. The mid-July projection of region-wide total commercial harvest was greater than the 1.12 million trigger for an early region-wide troll closure, specified in Alaska Board of Fisheries regulation and the PST conservation agreement.

The 2009 all-gear catch of coho salmon totaled 2.60 million fish of which 2.37 million (91%) were taken in commercial fisheries (Table 53). The troll catch of 1.59 million fish was very near the 10-year average of 1.58 million fish and accounted for 67% of the commercial catch. Average weekly power troll CPUE was 4% above the 10-year average while overall region wild stock abundance appeared very close to the 10-year average. The average dressed weight of 5.8 lbs. for troll-caught fish was 9% below the 10-year average. The harvest of coho salmon in seine fisheries (296,100 fish) was 88% of the 10-year average while the drift gillnet harvest of 345,000 fish was 104% of average. The set gillnet harvest of 133,800 fish in the Yakutat area was 93% of the 10-year average, with 52% of the catch taken in the Situk-Ahrnklin

Lagoon and 33% in the Tsiu River system. A very preliminary estimate of the Southeast Alaska sport catch of 254,100 fish was 89% of the 10-year average.

Wild production accounted for 1.99 million fish (84%) in the commercial catch compared with a recent 10-year average of 1.93 million fish (80%). Of the estimated hatchery contribution of 384,300 fish, over 99% originated from facilities in Southeast Alaska. Escapement counts and estimates were within or above goal throughout the region. The combined peak count in the 14 surveyed streams in the Ketchikan area of 8,226 spawners was within the goal of 4,250-8,500 spawners. The total escapement of 2,282 spawners to Hugh Smith Lake ranked 2nd highest in 28 years and was well-above the recently revised biological goal range (500-1,600 spawners). The strong escapement to Hugh Smith Lake resulted primarily from a low exploitation rate rather than an exceptional return. The total return estimate of 4,219 fish was only 7% above the 1982–2008 average, as a result of smolt production that was 23% below average combined with marine survival that was 40% above average.

Marine survival rates were well-below average for northern Southeast indicator stocks (Auke Creek, Berners River, Chilkat River, Ford Arm Lake) and well-above average for indicator stocks in southern Southeast, including Chuck Creek on the outer coast and Hugh Smith Lake on the mainland south of Ketchikan. The survival rate for Hugh Smith smolts (17.3%) ranked 7th highest in 27 years, with the 6 higher estimates occurring in 1986 and during 1990–1996. Total returns to two major Lynn Canal systems (Berners and Chilkat Rivers) were only 39% and 50%, of the 2000–2009 average, respectively, due to combined low smolt production and low marine survival. Despite poor total returns, escapement goal ranges were achieved for both systems.

Exploitation rate estimates for indicator stocks were mixed relative to recent averages. The all-gear exploitation rate of 69% for Ford Arm Lake on the outer coast ranked 6th highest in 27 years and was well above the 10-year average (62%). The Alaska troll fishery accounted for 65% of the total estimated return (ranking in 3rd highest in 27 years) compared with a 10-year average of 51% and a long-term average of 52%. In contrast, the estimated all-gear exploitation rate on the Hugh Smith Lake stock (46%) was the second lowest estimate in 28 years and well below the 10-year average (56%) and the long-term average (65%). The Alaska troll fishery exploitation rate estimate of only 24% for the Hugh Smith Lake stock ranked 24th in 28 years and was far below the long-term average of 36%.

The 2009 region-wide summer troll coho fishery began on July 1. There was a mid-season closure during August 12-16. Trolling was extended in much of the region beyond the normal September 20 closing date due to expected strong escapements within or above goal. An extension to September 30 was implemented in all waters except Cross Sound, Icy Strait, northern Chatham Strait, Lynn Canal and outside waters between Yakobi Rock and Cape Fairweather. The areas that were closed on September 20 encompassed the primary migration path of weak Berners and Chilkat River stocks.

Table 53 Coho Salmon Harvest in Southeas Alaska in 2009 by Gear Type (Preliminary).

Gear Type	Harvest
Troll	1,591,500
Purse Seine	298,600
Drift Gillnet	351,400
Set Gillnet	133,800
Sport (marine and freshwater)	254,100
Total	2,629,400

Preliminary 2009 Chinook and Coho Salmon Catches in Washington and Oregon Fisheries

Introduction

This report describes the conduct of United States (U.S.) fisheries that occurred during 2009 in the area north of Cape Falcon, Oregon and south of the U.S./Canadian border. These fisheries were conducted consistent with Annex IV of the Pacific Salmon Treaty (PST, 2008) including obligations defined within Chapter 3 for Chinook individual stock based management regimes (ISBM) and Chapter 5 implementing the Southern Coho Management Plan.

Descriptions of the pre-season planning process, various regional fisheries, their general management constraints, and preliminary estimates of landed catch are listed in the following subsections. Pre-season projections of catches are compared with the preliminary estimates of landed catch for Chinook (Table 54) and coho (Table 55) in the various 2009 fisheries of interest to the Pacific Salmon Commission. For historical perspective, catches for those fisheries since 2000 are also presented. Catch estimates for the 2009 fisheries are preliminary and subject to change. Catch reports for Puget Sound sport fisheries managed without creel surveys are not available at this time. Estimates of spawning escapements are not available at this time.

Pre-season Planning

Southern U.S. regional management coordination of pre-season fishery planning occurs within the Pacific Fisheries Management Council (PFMC) process and the Tribal-State co-management process commonly referred to as "North of Falcon" (NOF). Within these processes, participants evaluate the biological and social/economic consequences of options for the outside (ocean) and inside (marine and freshwater) fisheries, including the anticipated impacts on southern origin stocks in fisheries conducted under the PST in Canada and Southeast Alaska. The final product is a total fishery package that achieves both domestic objectives and obligations assuming pre-season stock-specific abundance estimates and the expected performance of fisheries.

Chinook Salmon Management

Under the 2008 Pacific Salmon Treaty Agreement, Council fisheries are subject to the Individual Stock Based Management provisions of Annex IV, Chapter 3. These provisions require that adult equivalent mortality rates by U.S. fisheries south of the U.S./Canada border in the aggregate will be limited to no greater than 60% of that which occurred during the 1979-1982 base period on indicator Chinook stocks not achieving their management objectives. Fishing levels and patterns were defined to meet these PST Chinook obligations and to meet conservation obligations defined by provisions of the U.S. Endangered Species Act (ESA) for threatened and endangered Chinook salmon stocks originating from Puget Sound and the Columbia River. The 2009 U.S. ocean fishery seasons in the area north of Cape Falcon, Oregon were primarily constrained by the need to meet management objectives defined for ESA listed lower Columbia River natural tule fall Chinook stocks. Puget Sound fisheries were constrained by the need to meet management objectives for ESA listed Puget Sound Chinook.

Coho Salmon Management

The status of Canadian coho management units in 2009 indicated continuing concerns for the conditions of Interior Fraser coho. The Interior Fraser coho management unit remained in *low* status, resulting in a requirement to constrain the total mortality fishery exploitation rate for all 2009 U.S. fisheries to a maximum of 10.0 percent. Seasons and catch limits adopted for all southern U.S. fisheries in the aggregate were estimated to have a total mortality of 9.8% on the Interior Fraser management unit. All U.S. natural spawning coho management units defined by the Southern Coho Management Plan were forecasted to be in moderate or abundant status. Seasons and quota levels for U.S. ocean fisheries were constrained primarily by the management objectives of ESA listed lower Columbia River natural coho.

North of Cape Falcon Ocean Fisheries

Fisheries in this area are managed to meet objectives for ESA listed stocks, depressed Columbia River natural stocks and hatchery brood stock goals. Within these constraints, ocean fishing seasons are defined that meet legal requirements of Tribal fishing treaties and allocations between non-Tribal troll and sport fisheries. Ocean fishery seasons are also constructed to ensure a balance of opportunity for harvest with inside (marine and freshwater) fisheries Lower Columbia River hatchery coho and Bonneville Pool hatchery fall Chinook have historically been the major stocks contributing to catches of ocean fisheries in the North of Cape Falcon area.

Chinook and coho salmon catch quotas were defined for the 2009 ocean Tribal, non-Tribal troll and sport fisheries. Quotas for Chinook salmon were defined principally by management objectives for ESA-listed lower Columbia River natural tule fall Chinook stocks. Quotas for coho salmon in 2009 were defined principally by management objectives of lower Columbia River wild coho.

Non-Tribal Fisheries

Pre-season non-Tribal troll had quota levels of 20,500 Chinook and 33,600 coho (with healed ad-clip, hereinafter referred to as marked). The preliminary estimates of non-Tribal harvest in the 2009 North of Falcon troll fishery are 12,999 Chinook, (63% of the quota), and 32,240 coho (96% of the quota). Trollers harvested 10,184 Chinook in the May 1-June 30 Chinook-only fishery and the remaining 2,815 Chinook were harvested in the all-species fishery between July 1 and September 16. The coho catch represents harvest in a mark-selective fishery.

Sport Fisheries

Pre-season quotas for the sport fishery were 20,500 Chinook and 176,400 marked coho. The coho quota was modified in-season to 175,950 following an impact-neutral transfer of coho between sub-areas. Preliminary total catch estimates for the ocean sport fisheries north of Cape Falcon were 13,337 Chinook (65% of the coast-wide quota) and 158,734 coho (90% of the modified coast-wide quota). A description of the resulting season structure and catches by management area follows.

Columbia River Ocean Area (including Oregon)

Sport all-species salmon fishing opened in Ocean Area 1 (Columbia Ocean Area) on Sunday, June 28 with a quota of 88,200 marked coho (revised in-season to 96,500 following a transfer from the Ocean Area 2 sport quota) and a guideline of 5,400 Chinook. The fishery closed on August 31 upon projected attainment of the coho quota, and reopened on September 7 after a catch update showed coho remaining on the area quota. The catch estimates for Area 1 are 5,202 Chinook (96%) and 84,686 coho (88% of the revised quota). The Chinook minimum size limit was 24 inches, with a sub-area closure in the Columbia Control Zone.

Westport

Ocean Area 2 (Westport) opened for sport all-species salmon fishing on Sunday, June 28 with a quota of 65,270 marked coho (revised in-season to 55,270 following transfers to the La Push and Columbia Ocean area sport quotas) and a guideline of 11,850 Chinook. The fishery closed on its automatic closure date, September 20. The catch estimates for Area 2 are 5,014 Chinook (42%) and 53,702 coho (97% of the revised quota). The Chinook minimum size limit was 24 inches. Grays Harbor Control Zone was closed beginning August 1.

La Push

Ocean Area 3 (La Push) opened for sport all-species salmon fishing on Saturday, June 27 with a quota of 4,580 coho (revised in-season to 8,080 following transfers from the Westport and Neah Bay area sport quotas) and a guideline of 1,050 Chinook. The fishery closed on its automatic closure date, September 20, and reopened September 26 through October 11. The catch estimates for Area 3 during the all-species fishery are 678 Chinook (65%) and 6,846 coho (85% of the revised quota). The Chinook minimum size limit was 24 inches.

Neah Bay

Ocean Area 4 (Neah Bay) opened for sport all-species salmon fishing on Saturday, June 27 with a quota of 18,350 marked coho (revised in-season to 16,100 following transfers to the La Push area sport quota) and a guideline of 2,200 Chinook. The fishery closed on its automatic closure date, September 20. The catch estimates for Area 4 are 2,444 Chinook (11% over the guideline) and 13,501 coho (84% of the quota). The Chinook minimum size limit was 24 inches.

Tribal Troll Fishery

The Tribal troll fishery was constrained by a Chinook quota of 39,000 and a coho quota of 60,000. The season was comprised of a May/June Chinook directed fishery and a July 1 through September 15 all species fishery. The season concluded with a catch of 12,382 Chinook (32% of the quota) and 60,071 coho (100% of the quota).

Washington Coastal Terminal Fisheries

North Washington Coastal Rivers

Net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. The north coastal rivers net harvest (all by Tribal fisheries) includes catch for the Copalis, Moclips, Ozette, Sooes, Waatch, Quillayute, Hoh, Queets, and Quinault rivers. The 2009 commercial net fisheries in north coastal rivers have harvested an estimated 10,513 Chinook and 127,822 coho through November 15, 2009. Sport fishery harvest estimates are unavailable at this time.

Grays Harbor

Net and sport fisheries directed at salmon in Grays Harbor are implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. Harvest for Grays Harbor includes catch from both the Humptulips and Chehalis rivers. The 2009 Tribal net fisheries have harvested an estimated 2,500 Chinook salmon and 27,900 coho salmon. Non-Tribal net fisheries have harvested 1,195 Chinook salmon and 567 coho salmon. Sport fishery harvest estimates are unavailable at this time.

Columbia River Fisheries

Tribal and non-Tribal net and sport fisheries for Chinook and coho in 2009 occurred during the winter/spring (January-June 15), summer (June16-July) and fall (August-October) periods. All fisheries were constrained by impacts on ESA listed stocks. Winter/spring fisheries were primarily constrained by impacts on ESA listed upper Columbia River spring Chinook, Snake River spring/summer Chinook and wild winter steelhead. Summer fisheries were constrained by impacts to ESA listed Snake River sockeye. Fall fisheries were mainly constrained by impacts to ESA listed wild lower Columbia tule fall Chinook and wild lower Columbia River coho as well as Group B steelhead (part of the Snake River steelhead DPS).

Columbia River salmon fisheries are developed and regulated to meet conservation standards. Fisheries are managed to operate within the impact limits set for ESA listed stocks, meet the objectives for healthy Columbia River natural stocks, and ensure brood stock needs are met for hatchery salmon. Columbia River fisheries are also developed and managed to remain within the requirements of the 2008 – 2017 *US v. Oregon* Management Agreement, the Upper Columbia Management Agreement, and Fish and Wildlife Commission guidelines.

Winter-Spring Fisheries

Non-Tribal Net

The Mainstem Winter/Spring commercial fishery has operated under mark-selective fishery regulations since 2002. Winter sturgeon fisheries consisted of eight fishing periods conducted during January 7 through February 13 in the area below Bonneville Dam. A total of 18 marked Chinook were landed. The non-Tribal winter/spring salmon fishery consisted of three fishing periods (24 hours total) using tangle nets (4 ¼ inch mesh) during March 29 – April 14 in the area above the mouth of the Willamette River upstream to Bonneville Dam. Landings included 4,100 marked Chinook. Time, area, and gear restrictions were in place for all Winter/Spring net fisheries.

Sport

The mainstem Winter/Spring sport fishery has operated under mark-selective fishery regulations since 2001. The area below Bonneville Dam was open January 1 – April 22 with specific area and time restrictions in place. Catch estimates in this area include 16,900 marked Chinook. Mark-selective recreational fisheries also occurred during March 16 – April 30 in the area from Bonneville Dam upstream to the Highway 395 Bridge (near Pasco, Washington), during April 24 – May 17 in the Snake River and during May 1 - 17 on the bank of the mainstem Columbia River near the Ringold Hatchery. Fisheries in areas above Bonneville Dam did not benefit from a full season, due to in-season run size reductions and the associated reduction in harvestable Chinook. Catch estimates from these fisheries totaled 800,500 and 100 Chinook, respectively.

Tribal

Tribal fisheries are not mark-selective. All harvest includes marked and unmarked Chinook. No spring Chinook were harvested in the commercial winter season set-line sturgeon fishery (January 1 – 21) nor in the winter gillnet fishery (February through March 13). Ceremonial and subsistence (C&S) fisheries include harvest from platform, hook and line, and gillnet fisheries through Tribal permits. No commercial gillnet seasons were conducted for spring Chinook during 2009. Commercial sales were allowed for platform and hook and line caught fish beginning May 16. Harvest estimates from C&S and commercial fisheries total 13,100 spring Chinook.

Summer Fisheries

Non-Tribal Net

Summer season fisheries are not mark-selective. Three fishing periods (32 hours total) occurred during June 18 through July 1 in the area below Bonneville Dam. Landings are estimated at 2,500 Chinook and 200 sockeye. Time, area, and gear restrictions were in place for all summer season commercial fisheries.

Sport

Summer season Chinook fisheries are not mark-selective. The area below Bonneville Dam was open for the retention of adult Chinook from June 22 through July 5. Sockeye retention was allowed from June 12 through July 31. An estimated 2,200 Chinook and 900 sockeye were kept during the summer season below Bonneville Dam. The area above Bonneville Dam opened for adult Chinook retention July 1 and sockeye retention beginning June 16. Season totals for these fisheries are estimated at 500 adult Chinook and 100 sockeye.

The mainstem sport fishery below Bonneville Dam began August 1 with a daily limit of two fish, but only one Chinook. From the Rocky Point – Tongue Point line, upstream to the Lewis River, the fishery was open for Chinook retention through September 13. Beginning September 14, Chinook retention was only allowed upstream of the Lewis River to minimize handling of ESA listed wild tule Chinook. The total catch expectation for this fishery was 15,100 Chinook and 1,900 coho. Actual catch estimates include 24,400 Chinook and 6,000 coho.

The mainstem sport fishery from Bonneville Dam to the Highway 395 Bridge (near Pasco, Washington) began on August 1 with a two fish daily limit. The total catch expectation was 1,900 Chinook for this fishery. Actual catch estimates include 1,600 Chinook. A Snake River fishery took place during September and October. The Snake River fishery only allowed the retention of marked Chinook, which was largely incidental catch during the steelhead fishery. Kept catch from the Snake River fishery are estimated at less than 50 Chinook.

Tribal

Tribal fisheries are not mark-selective. Platform and hook and line fisheries occurred throughout the fall season. Platform and hook and line caught fish were allowed to be sold from August 1 through October 16. The commercial gillnet fishery consisted of six weekly fishing periods during August 24 through October 1. There were a small number of late fall subsistence gillnet permits issued after October 16. Preliminary harvest estimates total 95,000 Chinook and 9,700 coho.

Puget Sound Fishieries

Puget Sound marine fisheries of interest to the Pacific Salmon Commission in 2009 were regulated to meet conservation and allocation objectives for Chinook, coho, chum, pink, and sockeye salmon stocks, per Tribal-State agreement. For Puget Sound Chinook listed under the ESA, fisheries were managed according to the Puget Sound Chinook Harvest Management Plan. This management plan defines limits to total exploitation rates for natural stocks and was determined by the National Marine Fisheries Service to be consistent with requirements specified under the ESA 4(d) Rule.

Release requirements were applied to many sport and net fisheries for Chinook, coho and chum salmon, the latter to protect ESA-listed Hood Canal and Strait of Juan de Fuca summer chum.

Puget Sound fisheries were constrained by the need to meet management objectives for ESA listed Puget Sound Chinook, including mid-Hood Canal and Snohomish River Chinook. For the 2009 season, the low status of the Interior Fraser River, Skagit River and Stillaguamish River coho management units represented the primary coho stocks of concern.

Strait of Juan de Fuca Sport

Areas 5 and 6 were open to Chinook retention (non-selective) from February 14 through April 10.

Sport fishing regulations allowed retention of marked Chinook or coho beginning July 1 in the Strait of Juan de Fuca (Areas 5 & 6). The Chinook mark selective fishery began on July 1 and continued through August 15 without a quota. Additional sub-areas were also closed, with the intention of providing protection of local Chinook stocks. The fishery continued through September 30 with Chinook non-retention. Due to higher catches of unmarked Chinook than modeled, Chinook retention was prohibited beginning on August 7. A coho mark selective fishery occurred from July 1 to September 18 in Area 5 and from July 1 to September 30 in Area 6. From September 19 - 30 retention of wild coho was legal in Area 5. Chinook retention was legal in Area 5 from October 1 through October 15, and Area 6 from October 1 through October 31 with a 2 fish daily limit, including not more than one Chinook salmon.

Area 5 sport catch for the creel survey period of July 1 through September 30 totaled 6,700 Chinook and 26,600 coho. Catch record card estimates for salmon taken at times other than noted above are not yet available.

Strait of Juan de Fuca Tribal Troll (Area 4B, 5 and 6C)

The preliminary estimates of the on-going 2009 Strait of Juan de Fuca Tribal troll fishery are 3,500 Chinook and 200 coho. The Tribal catch estimates from this area do not include catches from Area 4B during the May-September PFMC management period, which have been included in the North of Cape Falcon troll summary.

Strait of Juan de Fuca Net

Preliminary estimates of the 2009 catch in Strait of Juan de Fuca Tribal net fisheries (non-Tribal does not have any net fisheries in the Strait of Juan de Fuca) are 100 Chinook and 2,400 coho salmon.

San Juan Islands Net (Ares 6, 7 and 7A)

Preliminary estimates of the 2009 catch in San Juan Island net fishery directed at sockeye, pink, or chum salmon totaled 700 Chinook and 2,100 coho salmon for the non-Tribal fishery. Tribal fishery landings from this area totaled 300 Chinook and 3,700 coho.

San Juan Islands Sport

Marked Chinook retention was allowed in the entire area for the period February 1 – April 15.

The southern and southeastern (Rosario Strait) portions of this catch area were again closed July 1 through September 30 to protect migrating, mature Puget Sound Chinook salmon. The remaining area was opened for retention of Chinook and coho salmon from July 1 to October 31. Release of unmarked coho salmon was required for the months of August through October. December was open for marked Chinook retention. Additional sub area closures are described in the Washington State Sport Fishing Rules Pamphlet. Catch estimates for this area are not available at this time.

Inside Puget Sound (Areas 8-13) Sport

Catch and angler effort estimates are available for mark-selective sport fisheries directed at hatchery Chinook in Areas 8.1 & 8.2, 9, and 10 during the winter period, and summer period fisheries conducted in Areas 9, 10, 11 and 13. Detailed reports of the conduct of these fisheries, including catch, effort and results of sampling and monitoring programs, are available from the Washington Department of Fish and Wildlife.

Puget Sound Marine Net (Areas 8-13)

To achieve conservation objectives for Puget Sound Chinook and coho, very limited net fishing opportunities directed at abundant returns of hatchery Chinook and both hatchery and natural returns of coho were planned for 2009.

Puget Sound Terminal Fisheries

Tribal net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. The Puget Sound rivers net harvest (all by Tribal fisheries) includes catch from river systems in the Strait of Juan de Fuca, Hood Canal, and Puget Sound.

Table 54 Preliminary 2009 Landed Chinook Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission (nearest 100)

Fisheries	2009 Preseason Total Mortality 1/	2009 Preseason Landed 2/	2009 Preliminary Landed	2008	2007	2006	2005	2004	2003	2002	2001	2000
Ocean Fisheries												
Troll (see text for quota information)												
Cape Flattery & Quillayute (Areas 3/4/4B) 3/	54,600	45,400	15,800	23,300	28,500	42,400	57,500	73,400	72,400	61,400	35,700	16,200
Columbia. R & Grays Harbor (Areas 1&2)	19,500	14,100	9,600	11,800	10,200	15,400	29,600	14,800	19,000	32,300	14,300	1,700
Sport (see text for quota information)												
Neah Bay (Area 4) 4/	2,500	2,200	2,400	1,400	1,500	1,400	2,800	5,500	4,700	5,200	1,500	400
La Push (Area 3)	1,200	1,100	700	700	600	1,700	1,700	1,800	1,900	2,000	600	200
Grays Harbor/ Westport (Area 2)	13,200	11,900	5,000	9,600	5,200	5,800	22,400	11,300	21,800	42,600	15,700	6,300
Col. R./ Ilwaco (Leadbetter Pt. to Cape Falcon)	5,900	5,400	5,200	3,700	2,200	2,300	13,200	8,400	8,100	10,800	7,700	2,300
Inside Fisheries												
Sport												
Juan de Fuca (Area 5&6) 5/	9,400	5,400	6,700 1/	4,700	6,500	4,800	2,700	4,800	4,700	2,900	4,300	1,300
San Juan Is. (Area 7)	7,300	4,500	na	4,500	5,200	3,300	2,200	2,200	2,300	5,500	6,600	3,400
Puget Sound (Areas 8-13)	58,100	30,900	na	20,900	38,300	20,900	18,300	19,600	19,400	22,300	33,500	18,900
Puget Sound Rivers	17,400	16,800	na	15,700	19,400	17,200	12,100	5,600	10,500	13,600	11,800	5,000
North WA Coastal Rivers	na	na	na	800	700	700	1,800	2,000	1,700	500	1,900	1,300
Grays Harbor (Areas 2A-2D)	na	na	na	300	1,700	1,800	400	6,000	1,300	3,100	3,900	1,800
Columbia River Sport 6/ - Spring	na	na	18,300	22,300	9,700	13,000	13,600	26,700	20,800	23,800	25,800	300
Columbia & Trib Sport / - Summer/Fall	na	na	34,600	23,300	19,000	23,200	38,100	43,900	52,300	50,700	28,600	17,700
Net and Troll												
North WA Coastal Rivers	na	na	10,500	8,900	5,500	14,000	16,000	23,000	11,400	14,500	8,000	5,300
Grays Harbor (Areas 2A-2D) 7/	na	na	3,700	2,600	3,000	3,700	2,600	3,600	900	1,500	6,100	4,700
Columbia River Net - Wint/Spr 8/	na	na	17,200	26,200	8,400	12,800	11,400	30,700	23,300	47,900	60,100	11,300
Columbia River Net – Sum/Fall 8/	na	na	142,500	144,000	55,600	123,600	135,100	136,000	127,900	131,800	104,600	52,300
Strait of Juan de Fuca(4B winter, 5 & 6C) Net & Troll	10,900	9,400	3,600	6,400	4,500	2,000	5,500	21,300	1,200	2,800	2,500	800
San Juan Islands (Areas 6, 7 & 7A)	8,200	5,000	1,000	100	2,600	5,300	3,800	4,100	4,800	1,900	1,000	1,000
Puget Sound Marine (Areas 8 - 13)	39,500	38,800	39,600	61,300	64,200	69,200	60,500	40,800	57,500	66,500	73,900	65,700
Puget Sound Rivers	56,400	56,400	23,500	40,600	55,200	40,500	26,400	28,400	25,500	34,200	30,300	12,300

Shaded values include catch from mark-selective fisheries.

Footnotes:

1/ Nominal total mortality is not adjusted for Adult Equivalents (AEQ) and does include non-retention mortality.

2/ For the ocean fisheries, this column shows the 2009 Chinook troll quotas (Non-Tribal troll quota 20,500 and Tribal troll quota of 39,000) as distributed by ocean area; the Sport Chinook quota 20,500 is also shown as distributed by area specific guidelines.

3/ Includes Area 4B catch during the PFMC management period (May 1 - September 30); Area 4B Tribal troll catch outside PFMC period included under Strait of Juan de Fuca Net and Troll.

4/ Includes Area 4B catch

5/ 2009 catches represent July 1 through September 30 (creel estimate includes catch through Sept. 30) in Area 5 only, since CRC annual estimates are not yet available.

6/ Mainstem only (mouth upstream to Hwy 395 Bridge for spring and mouth upstream to Priest Rapids Dam for summer and fall).

7/ Includes Grays Harbor catches as well as catch from the upper Chehalis and Humptulips Rivers and their tributaries for spor; and Lower Chehalis and Humptulips R. for net estimates.

8/ Mainstem retained catch only

Table 55 Preliminary 2009 Landed Coho Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission

Fisheries	2009 Preseason Total Mortality 1/	2009 Pre-season Landed 2/	2009 Preliminary Landed	2008	2007	2006	2005	2004	2003	2002	2001	2000
Ocean Fisheries												
Troll												
Cape Flattery & Quillayute (Areas 3/4) 3/	72,600	66,100	63,500	14,200	41,800	32,800	23,800	67,800	11,800	17,900	58,800	21,800
Columbia R & Grays Harbor (Area 2)	35,200	27,500	28,400	2,300	16,700	1,800	4,300	16,400	4,700	200	7,400	5,900
Sport 6/												
Neah Bay (Area 4)	22,200	18,400	13,500	2,200	10,600	5,800	10,200	29,400	19,700	8,400	17,900	11,600
La Push (Area 3)	5,500	4,600	6,800	500	2,800	1,900	2,300	3,200	3,400	1,700	3,300	1,900
Grays Harbor (Area 2)	75,600	65,300	53,700	7,500	23,000	8,800	10,500	29,300	39,300	19,100	69,400	28,800
Col. R. (Leadbetter Pt. to Cape Falcon)	100,500	88,200	84,700	10,800	65,800	24,800	38,700	73,500	106,400	59,400	116,700	39,600
Inside Fisheries												
Sport												
Juan de Fuca (Areas 5 & 6) 4/	29,700	17,400	26,600	13,600	34,000	12,700	27,200	43,000	50,900	33,700	71,000	32,600
San Juan Islands (Area 7)	500	400	n/a	200	600	100	1,000	1,400	2,000	3,300	4,900	2,600
Puget Sound Sport (Areas 8-13)	35,300	33,500	n/a	9,700	29,700	16,900	30,400	39,300	48,700	29,500	117,600	39,700
Puget Sound Rivers	24,900	23,800	n/a	15,000	32,000	13,600	32,300	34,100	48,100	35,500	66,800	20,000
North WA Coastal Rivers	5,500	5,300	n/a	1,500	1,600	600	5,200	5,200	4,300	3,300	6,000	2,100
Grays Harbor (Areas 2A-2D) 5/	6,800	6,500	n/a	3,200	4,400	2,200	11,000	10,000	12,000	13,100	20,300	5,100
Columbia River Buoy 10	131,800	115,000	50,000	8,600	8,400	3,700	6,900	15,200	54,400	6,200	132,000	21,500
Net and Troll												
North WA Coastal Rivers	55,600	54,500	127,800	50,400	26,900	30,600	98,400	54,100	57,300	80,100	73,300	30,100
Grays Harbor (Areas 2A-2D) 5/	26,600	26,000	28,500	19,500	11,800	9,600	29,200	24,400	16,500	21,900	14,200	16,700
Strait of Juan de Fuca (Areas 4B winter, 5/6C) Net & Troll	3,800	3,700	2,600	500	1,000	600	600	1,600	2,800	6,900	5,300	2,500
San Juan islands (Areas 6, 7 & 7A)	9,800	8,700	5,800	200	1,900	800	2,900	20,100	9,000	3,700	700	1,600
Puget Sound Marine (Areas 8 - 13)	110,400	108,200	117,400	146,600	129,300	147,400	191,400	315,400	131,700	163,200	233,800	261,800
Puget Sound Rivers	63,700	62,500	27,000	84,600	84,100	118,800	105,700	210,300	107,300	123,200	135,200	129,700

Shaded values include catch from mark-selective fisheries.

Footnotes:

1/ Estimates of Total Mortality include non-retention mortality.

2/ For ocean fisheries, this column shows the 2009 coho troll quotas (Non-Tribal troll quota 33,600 (after in-season reduction) and Tribal troll quota of 60,000) as distributed by ocean area; the sport coho quota 176,500 is also shown as distributed by area prior to in-season adjustments.

3/ Includes Area 4B catch during the PFMC management period (May 1 – September 30); Area 4B Tribal troll catch outside PFMC period are included in Strait of Juan de Fuca Net & Troll.

4/ 2009 catch represents mark selective fisheries July 1 through September 30 in Area 5 only, since CRC annual estimates are not yet available.

5/ Includes Grays Harbor catches plus catch from the Chehalis and Humptulips Rivers and their tributaries for sport; and Lower Chehalis and Lower Humptulips Rivers for net estimates.

6/ 2009 in-season Quota adjustments were:
Neah Bay (Area 4) adjusted from 18,350 to 16,100
La Push (Area 3) adjusted from 4,580 to 8,080
Westport (Area 2) adjusted from 65,270 to 55,270
Columbia ocean (Area 1) adjusted from 88,200 to 96,500

Preliminary Review of the 2009 Washington Chum Fisheries of Interest to the Pacific Salmon Commission

This summary report provides a preliminary review of the 2009 U.S. chum fisheries conducted in the Strait of Juan de Fuca (Areas 4B, 5 and 6C), the San Juan Islands (Area 7) and the Point Roberts area (Area 7A), conducted in compliance with provisions of Chapter 6 of Annex IV of the Pacific Salmon Treaty. The harvest and abundance information provided are based on preliminary data reported through November 20 and is subject to correction and revision as additional information becomes available.

Mixed Stock Fisheries

Areas 4B, 5 and 6C

As in previous years, the chum fishery in Areas 4B, 5 and 6C was restricted to Treaty Indian fishers using gill nets. The fall chum fishery opened the week of October 11, with a schedule of six days per week and continued through November 14, except for a two-day closure, November 1 and 2, to review catches. A total of 567 chum salmon were harvested. Including incidental catches of chum salmon prior to the chum directed fishing season, 604 chum salmon were harvested (Table 56). During the fall chum fisheries in Areas 4B, 5, and 6C, there was a reported bycatch of 19 steelhead, 2,288 coho, and 5 Chinook.

Areas 7 and 7A

Chum fisheries in Areas 7 and 7A are regulated to comply with a base harvest ceiling in U.S. Areas 7 and 7A, unless a critically low level of abundance is identified for those populations migrating through Johnstone Strait. The base harvest ceiling for the Areas 7 and 7A fishery, in 2009 was 130,000 chum salmon. Canada indicated in-season, on the basis of Inside area test catches and fisheries, that the Inside area run size abundance was not at a critical level. Chapter 6 of the Annex also specifies that chum fisheries in Areas 7 and 7A may not be initiated prior to October 10 and that, if the Fraser River chum run is updated in-season to levels lower than 900,000 fish, the U.S. would take actions to limit fishery impacts on Fraser chum. The initial in-season Fraser chum run size abundance estimate exceeded 1.175 million, so this provision was not applicable to the 2009 management actions.

Non-Treaty reef net fisheries targeting adipose-marked coho salmon were conducted from the end of Fraser Panel control (September 18), until October 9. Chum retention was prohibited in this fishery until October 1. Chum salmon catch in this fishery, between October 1 and October 9, was 2,377 fish. Reef nets remained open targeting chum salmon from October 10 through November 14 catching an additional 457 chum, for a total of 2,834 chum caught in the reef net fishery.

The Treaty Indian gillnet and purse seine fishery opened at the start of the fall chum management period, on October 10 for 38 hours then again on October 14 for 38 hours, then opened continuously from October 18 through November 15. The Non-Treaty fleet was open for 4 days of combined gillnet and purse seine fishing during Week 42, then conducted fisheries continuously October 20 through November 14.

Catches per vessel were low throughout the fishery, dropping off precipitously in the latter portion of the management period. Effort remained relatively low throughout the fishery primarily because of low catches, the availability of alternate fishing opportunities in other Puget Sound areas, and inclement weather. During the last two weeks of the fishery, there was very little catch and effort. Chum prices have improved over the past several years, but this fishery did not reach its base catch ceiling in 2009.

There were 69 summer chum salmon reported caught in Areas 7 and 7A prior to September 16. The total chum salmon catch by all gears in Areas 6, 7, and 7A, reported through November 14, was 22,581. Catch distribution, between Areas 7 and 7A, was 83.5% and 16.5% respectively. However, it should be noted that these catch reports are likely incomplete (Table 57).

During the fall chum fisheries in Areas 7 and 7A, there was a reported bycatch of 551 coho salmon and no steelhead.

No chum or coho tissue samples were collected for genetic analysis from this fishery in 2009

Puget Sound Terminal Area Fisheries and Run Strength

Preseason forecasts for chum returns to Puget Sound were for a low fall chum run totaling approximately 915,000 fish. Current in-season estimates indicate that the returns to Hood Canal and Stillaguamish–Snohomish may be above forecast, South Puget Sound approximately at forecast, and those to the Skagit below forecast. Some Puget Sound chum fisheries are still underway and additional in-season estimates of abundance may occur. At this time, spawning escapements are underway and therefore estimates are not available.

Table 56 Preliminary 2009 Chum Harvest Report for Washington Catch Reporting Areas 4B, 5, 6C.

Areas 4B, 5, 6C	
Treaty Indian, Gill Net Only	
Time Periods	GN
Through 9/15	13
9/16-10/3	24
10/4–10/10	0
10/11–10/17	3
10/18–10/24	303
10/25–10/31	205
11/1–11/7	53
11/8–11/14	3
Total	604

Table 57 Preliminary 2009 Chum Harvest Report for Washington Catch Reporting Areas 6, 7, 7A.

	Area 6	Area 7				Area 7A			Area 6, 7, 7A
Time Periods	GN	PS	GN	RN	Area total	PS	GN	Area total	Total
Through 9/15	0	64	0	0	64	5	0	5	69
9/16–9/30	0	0	0	0	0	0	0	0	0
10/1–10/10	0	0	0	2337	2337	0	0	0	2337
10/11–10/17	0	10,911	1,899	457	13,267	365	1,275	1,640	14,907
10/18–10/24	0	1,637	344	0	1,981	23	666	689	2,670
10/25–10/31	0	626	542	0	1,168	0	1,320	1,320	2,488
11/1–11/7	0	0	0	0	0	0	22	22	22
11/8–11/14	0	0	5	0	5	0	43	43	48
Total	0	13,238	2,790	2,834	18,862	393	3,326	3,719	22,581
10/11–11/14 Period Bycatch	Coho: 551; Steelhead: 0								

Preliminary Review of 2009 United States Fraser River Sockeye and Pink Salmon Fisheries

Introduction

The 2009 Fraser River Panel season was the eleventh implemented under the renewed Annex IV of the Pacific Salmon Treaty (PST). The treaty establishes a bilateral (U.S. and Canada) Fraser River Panel (Panel) that develops a pre-season management plan and approves in-season fisheries within Panel Area waters directed at sockeye and pink salmon bound for the Fraser River (Figure 46). In partial fulfillment of Article IV, paragraph 1 of the PST, this document provides a season review of the 2009 U.S. Fraser River salmon fisheries as authorized by the Panel. Catch and abundance information presented is considered preliminary.

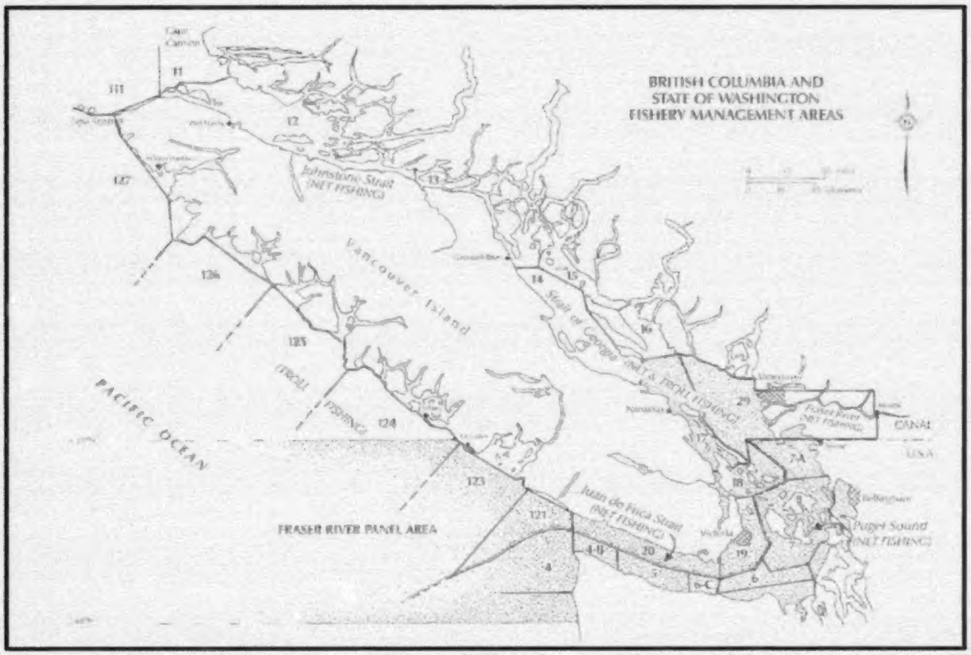


Figure 46 British Columbia and State of Washington Fishery Management Areas, 2009. The shaded area in the figure represents the marine waters managed by the Fraser River Panel.

Preseason Expectations and Plans

Forecast and Escapement Goals

Pre-season run size forecasts and escapement goals by stock group (run) at various probability levels were provided to the Panel by the Department of Fisheries and Oceans, Canada (DFO). Table 58 shows the 2009 agreed pre-season sockeye forecasts which are based on the 50 percent probability level forecast, which represents the mid-point of the range of possible run sizes for all the stock management groups, except for the Early Stuart stock group. By agreement, the Panel adopted an Early Stuart forecast at the 75% probability level, based on recent past performance of this forecast model. Table 58 also provides the escapement goals for the sockeye management groups based on the pre-season forecasted abundance. The escapement goals for all timing groups can change in-season as the run size estimates change.

Fraser River pink salmon returns were projected pre-season at 17,535,000 fish, with an escapement goal of 6 million fish. However, fisheries directed at Fraser River pink salmon were expected to be limited due to Late Run sockeye concerns, and it was anticipated that not all of the available pink salmon Total Allowable Catch (TAC) would be harvested due to a significant overlap in run timing of Late Run sockeye and pink salmon.

Table 58 2009 Pre-seasoOn Fraser River Sockeye Forecasts and Escapement Goals, by Stock Group

	Early Stuart	Early Summer	Summer	Late	Total
Forecast of Abundance	165,000	739,000	8,677,000	907,000	10,488,000
Escapement Goal	156,000	296,000	3,471,000	592,000	4,515,000

Diversion

Diversion is defined as the percentage of Fraser sockeye or pink salmon migrating through Johnstone Strait (rather than the Strait of Juan de Fuca) in their approach to the Fraser River. Diversion through Johnstone Strait was forecasted pre-season to be 32% for sockeye. Diversion was modeled on a daily basis starting at 0% (100% migration through the Strait of Juan de Fuca) in late June and climbing to 39% in steady increments by early August.

Management Adjustment (MA) and Environmental Conditions

Management Adjustments reflect the expected difference between escapement estimates at Mission (minus catch above Mission) and actual spawning escapements. If the adjustments are adopted by the Panel, they are added to the gross escapement goal, effectively increasing the goal for an impacted run. For 2009, the Management Adjustment was modeled using discharge and temperature predictor variables. Table 59 provides the pre-season projected MA's that were used for planning fisheries. In-season management adjustments use MA models that are based on both measured and forecasted temperatures and discharges. Due to conservation concerns for some of the Late Run stocks the management approach for this stock group was to keep the impacts limited to a fishery exploitation rate of no more than 20%, and no management adjustments were used for the Late Runs.

Table 59 2009 Pre-Season Management Adjustments

Early Stuart		Early Summer		Summer	
Difference Between Estimates	**Management Adjustment**	**Difference Between Estimates**	**Management Adjustment**	**Difference Between Estimates**	**Management Adjustment**
32%	72,000	29%	118,000	0%	0

Run Timing

Run timing is temporal information about the presence of a salmon stock in a specific area during the time the stock is migrating through that area. Run timing is an important variable when planning fisheries and predicting run size in-season. The following Area 20 50% dates (the dates when 50% of the stock or run group is forecasted to have passed through Area 20) were predicted pre-season for the major Fraser sockeye run groups

Table 60 2009 Area 20 Pre-Season 50% Run Timing Dates

Run Group	Area 20 50% Run Timing Date
Early Stuart	July 2
Early Summers	July 26
Summers	August 5
Birkenhead	August 11
True Lates	August 11
Pinks	August 25

U.S. Total Allowable Catch (TAC)

Pre-season, the U.S. TAC was established at 889,900 sockeye and 2,962,000 pink salmon. Pink salmon fisheries were expected to be conducted after most of the sockeye cleared the fishing areas. With this limitation, U.S. fisheries were not expected to be able to harvest all of the pink salmon TAC due to projected late start dates.

Pre-Season Management Plans

During the preseason planning process the Fraser Panel evaluates and adopts management approaches for Fraser sockeye and pink salmon that address conservation and harvest objectives for each major stock group. The Fraser River Panel develops fishing plans and in-season decision rules with the objective of meeting management goals. Managing Fraser River sockeye and pink salmon involves a trade-off between catching abundant stocks and meeting escapement objectives for less abundant stock groups.

In 2009 the Panel was faced with a situation where fishing opportunities would be constrained by Early Summer runs at the beginning of the season and Late Run stocks later in the season. There was no TAC predicted to be available for Early Stuart sockeye in 2009, and commercial fisheries were not contemplated on this timing group.

The early entry behavior of Late Run sockeye, observed in recent years, which results in an apparent high loss of fish prior to reaching the spawning grounds, was expected to continue in 2009. Given this expected loss, a management approach was adopted pre-season to allow for a Late Run fishery exploitation rate of no more than 20%.

The U.S. Section of the Panel developed a pre-season fishing plan that focused fishing effort to maximize the Summer Run catch (which made up a large portion of the TAC, and had the highest allowable exploitation rate), while minimizing the impact on Early Summer runs and Late Runs. For the major U.S. fisheries this meant that sockeye openings would likely be constrained to about a week of fishing during the last week of July and the first week of August. The total number of days of fishing in U.S. waters was expected to be relatively small given the expected low diversion rate. Pink salmon directed fisheries were not anticipated until the first week of September after the Late Run sockeye had mostly cleared the fishing areas, unless sufficient sockeye TAC remained to allow fisheries to begin earlier

In-Season Management

In-season, the Pacific Salmon Commission staff analyzes a variety of information to produce best estimates of diversion, management adjustments, run-timing, abundance, and harvest by stock group. These estimates are created using stock ID information, test fishing data, counts of escapements past Mission, harvest data and environmental information.

Run Assessment

The final in-season abundance estimates for 2009(Table 61) indicate that all the sockeye stock groups returned in numbers much lower than pre-season expectations. The most significant reductions from expectations were in the Early Summer and Summer stock groups. The Summer stock group, which was expected to provide the bulk of the 2009 sockeye return, came back at only 7% of the forecasted level.

These very poor returns relative to expectations are indicative of unusually poor marine survival affecting most of the Fraser sockeye stocks. Given these poor returns there was no TAC for any stock group available for commercial harvest.

In contrast, pink salmon returns were somewhat better than expected, with an in-season estimated run size of 19,500,000 fish, relative to a preseason expectation of 17,535,000 fish (111% of expected). This pink salmon in-season abundance estimate afforded a significant TAC and U.S. fishing opportunity late in the season.

Run timing was not greatly different than predicted preseason, although the pink salmon run was about four days later than expected which created less overlap between sockeye and pink salmon runs and facilitated increased pink salmon fishing opportunities.

Table 61 Comparison of Pre-Season vs. In-Season Abundance Estimates for Fraser River Sockeye Salmon by Stock Group (run).

Stock Group	Pre-Season 50% Probability Forecast	In-Season Run Size Estimate	Comparison: In-Season vs. 0Pre-Season Forecast
Early Stuart	165,000	85,000	52%
Early Summer	739,000	175,000	24%
Summer	8,677,000	650,000	7%
Late	907,000	460,000	51%
Total	10,488,000	1,370,000	13%

Table 62 2009 Preliminary 50% Run Timing Dates in Area 20

Run Group	Pre-season 50% Run Timing Date	In-season 50% Run Timing Date
Early Stuart	July 2	June 29
Early Summers	July 26	July 30
Summers	August 5	August 4
Lates	August 11	August 11
Pinks	August 25	August 29

Season Description

Prior to August 26:

Throughout the summer the in-season assessments of abundance consistently indicated sockeye abundances well below levels at which the U.S. would have any available sockeye share to harvest. No commercial sockeye fisheries were opened in U.S. waters in 2009.

Week ending August 29:

Given an apparent abundance of pink salmon migrating through the Strait of Juan de Fuca and the very low abundance of sockeye based on test fishing results (sockeye comprised less than 5% of salmon in test catches this week), the Panel decided to open Treaty Indian fisheries in Areas 4B/5/6C and Non-Indian reef net fisheries in Areas 7/7A beginning on August 26. Purse seine and gillnet pink fisheries also opened this week for Non-Indian fisheries in areas 7/7A on August 27 and 29, and for Treaty Indian fisheries in areas 6/7/7A on August 28. All Non-Indian fisheries were required to release sockeye. The diversion rate for pinks was estimated at about 47%.

Week ending September 5:

Based on the continued clearance of sockeye from all U.S. fishing areas and pink salmon abundance appearing to be about as predicted, the Panel extended Treaty Indian pink fishing in Areas 4B/5/6C and Non-Indian reef net fishing in areas 7/7A throughout the week. Treaty Indian fisheries in Areas 6/7/7A were opened for 6 days on August 30, and September 1 – 5. Non-Indian fisheries were opened in Areas 7/7A for gillnet and purse seine gear for 3 days on August 31, and September 3 and 4. A portion of Area 7A near Point Roberts (the Apex) remained closed to fisheries throughout these openings to protect any sockeye that may be holding in this area prior to moving into the Fraser River. All Non-Indian fisheries were required to release sockeye. The pink salmon diversion rate was now estimated at 39%.

Week ending September 12:

Pink abundance appeared to be greater than forecast and the run size was updated by the Panel to 19.5 million. The pink diversion rate was now estimated at only 28%. Treaty Indian fisheries in Areas 4B/5/6C continued throughout the week. In Areas 6/7/7A the Treaty Indian fisheries were also open for the entire week. Non-Indian fisheries in Areas 7/7A were open for reef nets September 6 - 10, and Non-Indian gillnet and purse seine gear for 3 days on September 7, 8, and 10. The Non-Indian requirement to release sockeye remained in effect throughout this week's fisheries. The Apex closure was rescinded on September 11 as there appeared to be few if any sockeye holding off the mouth of the Fraser River.

Week ending September 19:

The pink run size estimate remained at 19.5 million. Treaty Indian fisheries in Areas 4B/5/6C/6/7/7A were all open for 1 day this week on September 13. The Panel relinquished regulatory control of areas 4B/5/6C on September 15, and areas 6 and 7 on September 18 (area 7A and the Apex area were relinquished on September 26 and October 3, respectively, per the regulatory control letters).

Harvest

Between August 26 and September 13 the United States caught a total of 2,726,230 Fraser River pink salmon and only 4,200 Fraser River sockeye in Panel area waters (Tables 63 and 64)[3]. All of the sockeye landed were taken as ceremonial and subsistence harvest by the Treaty Indian fishery. During this time period the Treaty Indian fisheries in Areas 4B/5/6C were open for a total of 19 days, and in Areas 6/7/7A for 15 days. The Non-Indian fishery in Areas 7/7A was open for 16 days for reef nets and 8 days for gillnet and purse seine gear. The Non-Indian fishery caught 1,764,140 Fraser pink salmon and the Treaty Indian fishery caught 962,090 Fraser pink salmon. In total, the U.S. caught 79% of its TAC of Fraser pink salmon.

Table 63 Preliminary Estimates of 2009 U.S. Catches of Fraser River Sockeye Salmon in Panel Area Waters

	Treaty Indian	Non-Indian
Ceremonial and Subsistence (all areas)	4,200	0
Commercial Catch in Areas 4B/5/6C	0	0
Commercial Catch in Areas 6/7/7A	0	0
Total Catch	4,200	0

Table 64 Preliminary Estimates of 2009 U.S. Catches of Fraser River Pink Salmon in Panel Area Waters

	Treaty Indian	Non-Indian
Recreational	0	3,200
Ceremonial and Subsistence (all areas)	700	0
Commercial Catch in Areas 4B/5/6C	100	0
Commercial Catch in Areas 6/7/7A	961,290	1,760,940
Total Catch	962,090	1,764,140
% of U.S. Catch	35.3%	64.7%

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[3] Catch data reported by PSC staff as of 11/4/09.

D. UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN THE UNITED STATES AND CANADA

The Pacific Salmon Treaty between Canada and the United States requires that information be exchanged annually regarding operation of and plans for existing enhancement projects, plans for new projects, and views concerning the other country's enhancement projects. In 1988, a committee was formed to develop recommendations for the pre- and post-season and enhancement report formats. In summary, the committee proposed that:

- detailed reports on existing enhancement facilities of the type produced in 1987 be prepared every four years;
- the Parties will annually update information on eggs taken, fry or smolt released and adults back to the facility; significant changes in facility mission or production will be highlighted in narratives; and
- the Parties will provide periodic reports through the appropriate panels on new enhancement plans.

1. 2004 ANNUAL REPORT ON THE SALMON ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2010.

2. 2005 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2010.

3. 2006 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2010.

4. 2007 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2010.

5. 2008 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2010.

6. 2009 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2010.

7. 2006 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2010.

8. 2007 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2010.

9. 2008 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2010.

10. 2009 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2010.

Reports of the Joint Technical Committees

PART V
REPORTS OF THE JOINT TECHNICAL COMMITTEES

Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 2006 to March 31, 2007 are presented in this section. Copies of the complete reports are available from the library of the Pacific Salmon Commission.

A. JOINT CHINOOK TECHNICAL COMMITTEE

2009 ANNUAL REPORT OF CATCHES AND ESCAPEMENTS
TCCHINOOK (09)-1 – June 2009.

The June 30, 1999, Pacific Salmon Treaty (PST) Annexes and Related Agreements (Agreement) substantially changed the objectives and structure of the Pacific Salmon Commission's (PSC) Chinook salmon fisheries and assessment of Chinook salmon stocks. The Agreement replaced the previous ceiling and pass-through fisheries with Aggregate Abundance Based Management (AABM) and Individual Stock Based Management (ISBM) fisheries. It also assigned the Chinook Technical Committee (CTC) with a number of tasks related to implementation of the Agreement (Appendix to Annex IV, Chapter 3).

This report summarizes the 2008 fishery catches by region, available estimates of incidental mortality by fishery and limited commentary on fishery catches where needed. Landed catch is reported in the appendices for each geographic area covered under the PST. An assessment of escapement for stocks with CTC accepted goals is included, and escapement data thru 2008 are provided for all escapement indicator stocks.

The escapements of 50 naturally spawning escapement indicator stocks/stock aggregates are reviewed annually. Biologically-based escapement goals have been accepted by the CTC for 24 of the 50 escapement indicator stocks/stock aggregates. For 12 of these, the agency escapement goal is defined as a range; for the remaining 12, the escapement goal is the point estimate of S_{MSY} (escapement producing maximum sustained yield). In 2008, escapements were within the goal range for seven stocks, above the range or S_{MSY} point estimate for six stocks, and below the goal for eleven stocks. Data for stocks without accepted goals are presented to illustrate trends in escapement. The CTC will continue to review escapement goals, as they are provided to the committee.

SPECIAL REPORT OF CHINOOK TECHNICAL COMMITTEE HRI WORKGROUP ON THE EVALUATION OF HARVEST RATE INDICES FOR USE IN MONITORING HARVEST RATE CHANGES IN CHINOOK AABM FISHERIES.
TCCHINOOK (09)-2 – October 2009.

During the course of renegotiations of Chapter 3 of the 1999 Agreement, several issues emerged with respect to the use of fishery harvest rate indices (*HRI*s) as measures of negotiated harvest rate reductions in AABM fisheries. In particular, the accuracy of the metric currently used for the WCVI fishery was questioned, as the observed value of the metric in recent years was much higher than expected, when considering observed landed catch (report to the bilateral PSC Commission entitled 'High Priority CTC Small Group Assignments, July 2007'). This led to questions regarding the utility of this particular metric for a fishery where significant changes in temporal harvest patterns have occurred relative to the 1979-1982 base period. Because HRIs are an integral component of the catch equations used to set allowable harvest levels, and had not been evaluated since the mid-1980s, the Commission requested that the Chinook Technical Committee (CTC) evaluate several candidate metrics for use in monitoring harvest rate changes in all three AABM fisheries.

A simulation model was written in VB.NET Express to simulate CWT tagging and recovery processes (described in Chapter 2). With the model, both true aggregate abundance and harvest were known with certainty, enabling comparison of the true harvest rate index (HRI, calculated as the ratio of the true harvest rate in a year divided by the average true harvest rate during the base period) with the values produced by each harvest rate metric.

The simulation model represented four ocean and one terminal fishery, with associated catch sampling of a stock aggregate that consisted of 16 stocks. The simulation was run over 19 years. Catch and catch sampling for ocean fisheries was divided into three periods for each year. Characteristics of three of the ocean fisheries (e.g. temporal harvest pattern, stocks encountered) were similar to those of the three AABM fisheries, i.e. SEAK, NBC and WCVI; the fourth ocean fishery was the same as the third fishery, except there was no harvest in one time period over the latter half of the simulation period. The simulation model also incorporated sampling for CWTs in ocean fisheries, a terminal fishery for each stock, and in spawning escapements.

Stock characteristics (e.g. maturation rates, cohort sizes, length at age, CWT mark rates) were similar to 16 of the 30 stocks currently included in the Pacific Salmon Commission (PSC) Chinook Model. These stocks were selected to provide a mix of spring and fall run types which had different distributions among ocean fisheries 1 through 3 (stocks were distributed identically to ocean fisheries 3 & 4).

Stochasticity was incorporated into many of the model processes in an attempt to better represent 'real world' variability in the following processes:

- Abundance of age 2 cohort sizes
- The proportion of age 2 production that is tagged with CWTs
- Distribution of stocks among preterminal fisheries by time period
- Legal-sublegal size of fish encountered
- Drop-off mortality
- Maturation rates
- CWT sampling

Structurally, the model simulated the capture, release, and CWT sampling of individual fish, separately accounted for mortalities of fish from each stock and CWT release group. In addition, variability in the size of individual fish was incorporated using estimated of means and standard deviations of length at age developed by Morishima and Chen (2006).

Two simulation scenarios were evaluated. The first maintained the same harvest rates across all years (with stochastic variation), while the second incorporated a harvest rate reduction after 5 years, to simulate reductions implemented in the 1999 Agreement. Each scenario was run 25 times (iterations), with 10 samples of CWT recoveries per iteration. The iterations were designed to provide information on process variability while the CWT samples were designed to provide information on sampling variability.

CWTs 'recovered' in each model run were subject to cohort analyses (Chapter 3) to calculate stock/age/fishery exploitation rates (ERs). These ERs were then used to calculate several HRI metrics: ratio of means (ROM), simple average (SA) and the stratified proportional fishery index (SPFI) for the four ocean fisheries. (Note that there was no need to evaluate HRI metrics for terminal fisheries since they were modeled using fixed harvest rates.) An investigation into a fifth alternative (gauntlet index, Appendix 1) to estimate fishery harvest rates was initiated, but was not completed due to the press of time available to complete the analysis. Although, we did not use the estimation algorithm of this alternative, we did compute the true harvest rate metric against which all indices were evaluated using this approach.

The ROM, SA, and SPFI HRI metrics were evaluated (Chapter 4) using a set of standardized criteria (described in Chapter 5). The performance of each HRI metric was evaluated for bias and precision using relative error (RE), root mean square error (RMSE), likelihood (LK) and the Akaike Information Criteria (AIC). The first three metrics compare the performance of each metric independent of their complexity. The latter adjusts the comparison to account for differences in complexity. Implications of changing HRI metrics from those used to establish AABM impact constraints under the 2008 Agreement are described in Chapter 6.

The stochasticity built into the simulation model produced considerable variability among stock/age ERs and HRIs in all fisheries. While model complexity makes it difficult to definitively explain all observed variability in the stock/age ERs and the individual stock/age HRIs that can be calculated from them, such variability was usually attributable to small cohort sizes, low tagging rates, low ERs, or a combination of these factors. The high number of age 2 CWT recoveries observed in all fisheries did not accurately reflect the lack of such recoveries in the real AABM fisheries. However, further analysis indicated that inclusion of age 2 recoveries did not bias the estimates of HRIs. The first HRI estimate for an incomplete brood year age-specific index was usually biased high, compared to subsequent estimates as the brood completed. However, this observation is similar to that observed in the real AABM fisheries, and therefore was not considered to be anomalous.

All three HRI metrics were found to be unbiased. However, based on the RE, RMSE and LK criteria, the SPFI performed the best for all fisheries and years. Even when complexity, i.e. the number of parameters, was accounted for (AIC), the SPFI performed the best for most years in most fisheries. When CWT recovery data from stocks not included in the base period are included in the SPFI calculation (something that cannot be done for most of the other metrics), the SPFI performs even better. Thus, the metric that allows stratification in its estimation provides the best estimate of harvest rate changes among the three HRI metrics examined.

Considering the changes in temporal patterns of the WCVI AABM fishery over the years, and the impact this may have on estimates of harvest rate changes, it is recommended that the SPFI be adopted for use in the WCVI AABM fishery. While doing so for the NBC fishery probably would not significantly improve estimates of harvest rate changes in this fishery, as there is no feasible stratification other than a complete year and area-wide stratum due to inadequate catches in certain times and areas, it may be desirable to do so for the sake of consistency among the three AABM fisheries. In order to inform a policy decision on adopting a new HRI metric, additional PSC Chinook Model calibration activities, described in Section 6, are needed to maintain the currently negotiated relationships between catch and abundance.

ANNUAL REPORT OF THE EXPLOITATION RATE ANALYSIS AND MODEL CALIBRATION.

TCCHINOOK (09)-3 – December 2009

This report contains the principal results of the annual exploitation rate assessment of CWT data through 2008 and the final preseason Chinook model calibration for 2009 (CLB 0907). Results include the Abundance Indices (AIs) for the AABM fisheries and ISBM indices for each party (country).

AABM ABUNDANCE INDICES AND ASSOCIATED CATCHES

The pre- and postseason AIs for the three AABM fisheries, Southeast Alaska All Gear (SEAK), Northern British Columbia Troll and Queen Charlotte Islands Sport (NBC), and West Coast Vancouver Island Troll and Outside Sport (WCVI) are presented in Table 1. The Agreement specifies that the AABM fisheries are to be managed through the use of the AIs. Each calibration provides the first postseason AIs for the previous year and the preseason AIs for the current year. Preseason AIs are used to set total allowable catch limits in the upcoming fishing season. Subsequently, postseason AIs (from the following year's calibration) are used to track catch overage and underage provisions. The first 2008 postseason AIs and the 2009 preseason AIs have now been finalized.

Table 1. Abundance Indices for 1999 to 2009 for the SEAK, NBC, and WCVI AABM fisheries

	SEAK		**NBC**		**WCVI**	
Year	**Preseason**	**Postseason**	**Preseason**	**Postseason**	**Preseason**	**Postseason**
1999	1.15	1.12	1.12	0.97	0.60	0.50
2000	1.14	1.10	1.00	0.95	0.54	0.47
2001	1.14	1.29	1.02	1.22	0.66	0.68
2002	1.74	1.82	1.45	1.63	0.95	0.92
2003	1.79	2.17	1.48	1.90	0.85	1.10
2004	1.88	2.06	1.67	1.83	0.90	0.98
2005	2.05	1.90	1.69	1.65	0.88	0.84
2006	1.69	1.73	1.53	1.50	0.75	0.68
2007	1.60	1.34	1.35	1.10	0.67	0.57
2008	1.07	1.01	0.96	0.93	0.76	0.64
2009	1.33		1.10		0.72	

In general, the AIs for 1999 through 2001 are low compared to AIs in the late 1980s and early 1990s but values increased substantially starting in 2002. The 2009 projected AI values have declined when compared to the high values for 2003 through 2006. In 2007, declines in abundances were detected with a low in 2008. The Agreement specifies an allowable catch for each AI for each fishery. The maximum allowable Treaty catch (total catch minus any hatchery add-on and exclusion catch) by fishery and year and the actual (observed) catches are shown in Table 2. This is the first year of allowable catch under the new agreement.

Table 2. Observed catches and postseason allowable catches for 1999 to 2008, and preseason allowable catches for 1999 to 2009, for AABM fisheries.

PST Treaty Allowable and Observed Catches									
	SEAK (T, N, S) [1]			**NBC (T, S)**			**WCVI (T, S)**		
Year	**Pre-season Allowable Catch**	**Post-season Allowable Catch**	**Observed Catch**	**Pre-season Allowable Catch**	**Post-season Allowable Catch**	**Observed Catch**	**Pre-season Allowable Catch**	**Post-season Allowable Catch**	**Observed Catch**
1999	192,800	184,200	198,842	145,600	126,100	86,726	128,300	107,000	36,413
2000	189,900	178,500	186,493	130,000	123,500	31,900	115,500	86,200	101,438
2001	189,900	250,300	186,919	132,600	158,900	43,500	141,200	145,500	117,670
2002	356,500	371,900	357,133	192,700	237,800	150,137	203,200	196,800	165,036
2003	366,100	439,600	379,519	197,100	277,200	191,657	181,800	268,900	175,821
2004	383,500	418,300	417,019 421,666 [2]	243,600	267,000	241,508	192,500	209,600	216,624
2005	416,400	387,400	390,482	246,600	240,700	243,606	188,200	179,700	202,662
2006	346,800	354,500	357,678	223,200	200,000	215,985	160,400	145,500	146,883
2007	329,400	259,200	327,138	178,000	143,000	144,235	143,300	121,900	139,150
2008	170,000	152,800	163,685	124,800	120,900	95,647	162,600	136,900	145,726
2009	218,800			143,800			107,800		

[1] Nomenclature is T for troll, N for net, and S for sport.

[2] The lower value resulted from subtracting a disputed terminal exclusion catch for the Stikine River in 2004. Catch accounting has since been defined in the Transboundary Agreement.

Table 3 shows the differences between the postseason allowable catches and the observed catches in AABM fisheries for 1999–2008, and the cumulative differential for those years. All three AABM fisheries have cumulative underages. In SEAK, observed catches have been below final allowable catches for three of the nine years; the cumulative differential is –1.1% or -0.9%. In NBC, observed catches have been below the final allowable catches in seven of the ten years; the cumulative differential is –23.8%. In WCVI, observed catches have been below allowable catches in five of the ten years; the cumulative differential is –9.4%.

Table 3. Deviations in numbers of Chinook salmon and percentages from catch targets derived from the first postseason AI (Table 2) for Pacific Salmon Treaty AABM fisheries in 1999 to 2008.

	SEAK		**NBC**		**WCVI**	
Year	**Number of Fish**	**Percent Difference**	**Number of Fish**	**Percent Difference**	**Number of Fish**	**Percent Difference**
1999	+14,642	+7.9%	-39,374	-31.2%	-70,587	-66.0%
2000	+7,993	+4.5%	-91,600	-74.2%	+15,238	+17.7%
2001	-63,381	-25.3%	-115,400	-72.6%	-27,830	-19.1%
2002	-14,767	-4.0%	-87,663	-36.9%	-31,764	-16.1%
2003	-60,081	-13.7%	-85,543	-30.9%	-93,079	-34.6%
2004	-1,281 +3,366	-0.3% +0.8%	-25,492	-9.5%	+7,024	+3.4%
2005	+3,082	+0.8%	+2,906	+1.2%	+22,962	+12.8%
2006	+3,178	+0.9%	+15,985	+8.0%	+1,383	+1.0%
2007	+67,938	+26.2%	+1,235	+0.9%	+17,250	+14.2%
2008	+10,885	+7.1%	-25,253	-20.9%	+8,826	+6.4%
Cum.	-31,792 -27,145[1]	-1.1% -0.9%[1]	-450,199	-23.8%	-150,577	-9.4%

[1] The lower value resulted from subtracting a disputed terminal exclusion catch for the Stikine River in 2004. Catch accounting has since been defined in the Transboundary Agreement.

ISBM INDICES

For ISBM fisheries, the Agreement specified that Canada and the United States would reduce base period exploitation rates on specified stocks by 36.5% and 40%, equivalent to ISBM indices of 63.5% and 60%, respectively. This requirement is contained in Chapter 3 section 4(d) of the treaty and is referred to as the ‘general obligation’ and does not apply to stock groups that achieve their CTC agreed escapement goals. Estimated ISBM fishery indices are shown in Table 4 for Canadian fisheries and Table 5 for United States (U.S.) fisheries. Both tables present CWT-based indices for 2007, and Chinook model-based indices for 2009. The agreement specifies that the ISBM indices be forecasted preseason and evaluated postseason for each escapement indicator stock listed in Attachments I to V of the Chinook Chapter.

CWT-based Indices in 2007

Five of the six Canadian ISBM indices from the Coded Wire Tag (CWT)-based estimates for 2007 show that exploitation rates were reduced more than required for all stocks or stock groups for which the indices could be calculated, with the exception being West Coast Vancouver Island. Four of the 16 U.S. ISBM indices for the CWT-based estimates for 2007 were reduced more than required. The other 12 U.S. CWT-based ISBM indices exceeded 0.60. Ten of these stocks (Upriver Brights, Quillayute, Queets, Hoh, Lewis, Mid-Columbia Summers, Nehalem, Siletz, Siuslaw and Cowichan) have agreed escapement goals. Four of these stocks (Upriver Brights, Quillayute, Hoh, and Mid-Columbia Summers) met or exceeded their respective escapement goals, and thus are exempted from the general obligation. . The only stock that didn't meet this criterion was Gray's Harbor Chinook. Figures 1.10 and 1.11 show the historical ISBM indices based on CWT recoveries for 1999-2007.

Table 4. Canadian 2007 ISBM indices based on CWT and the 2009 indices predicted from the PSC Chinook Model.

		Canadian ISBM Indices	
Stock Group	**Escapement Indicator Stock**	**CWT Indices for 2007**	**Model Indices for 2009**
Lower Strait of Georgia	Cowichan	0.043 [4]	0.495 [6]
	Nanaimo	NA [1,5]	
Fraser Late	Harrison River [2]	0.035 [7]	0.245
North Puget Sound Natural Springs	Nooksack	NA	0.988
	Skagit	NA	0.988
Upper Strait of Georgia	Klinaklini, Kakweikan, Wakeman, Kingcome, Nimpkish	0.268	0.128
Fraser Early (spring and summers)	Upper Fraser, Mid Fraser, Thompson	NA	0.094
West Coast Vancouver Island Falls	WCVI (Artlish, Burman, Kauok, Tahsis, Tashish, Marble)	0.906 [9]	0.137
Puget Sound Natural Summer / Falls	Skagit	NA	1.097
	Stillaguamish	0.192	1.123
	Snohomish	NA	1.098
	Lake Washington[8]	NA	0.918 [8]
	Green River	0.076	0.919 [8]
North / Central B. C.	Yakoun, Nass, Skeena, Area 8	NA	0.224
Washington Coastal Fall Naturals [3]	Hoko, Grays Harbor, Queets [2], Hoh [2], Quillayute [2]	NA	0.328
Columbia River Falls [3]	Upriver Brights [2]	NA	0.517
	Deschutes	NA	0.517
	Lewis [2]	NA	0.832
Columbia R Summers [3]	Mid-Columbia Summers [2]	NA	0.285
Far North Migrating OR Coastal Falls [3]	Nehalem [2], Siletz [2], Siuslaw [2]	NA	0.543

[1] Not available (NA) because of insufficient data (lack of stock specific tag codes, base period CWT recoveries, etc).

[2] Stock or stock group with a CTC agreed escapement goal.

[3] Stock groups listed in Annex 4, Chapter 3, Attachment V.

[4] An inconsistency was discovered between the approaches used to calculate the model-based and CWT-based indices. The former included harvest rates for terminal sport while the latter did not. Terminal sport harvest rates are now included in the calculation of both indices. Further review is yet required to determine whether the base period terminal sport harvest rates obtained from analyses of Big Qualicum CWT recoveries adequately represent impacts that would have occurred on Cowichan Chinook.

[5] Several problems have been identified in the approach previously used to calculate the CWT-based indices for Nanaimo Chinook. Until these problems are resolved, indices for this stock will not be reported.

[6] Although model-based indices were previously calculated separately for Cowichan and Nanaimo, these did not adequately represent impacts on either LGS stock because the model-based data represent an aggregate of the two stocks and methods do not currently exist to correctly disaggregate these data for calculation of the ISBM values. Until such methods are developed, a single index value only will be reported representing the aggregate.

[7] The terminal sport harvest rates for Chilliwack Hatchery Chinook, the indicator stock, were removed from the calculation for the Harrison River naturals because sport harvest has been essentially zero on the natural population.

[8] For Canadian ISBM fisheries, the same distribution and Index value are used for Lake Washington and Green R.

[9] ISBM indices for WCVI naturals are based on information from Robertson Cr. hatchery stock, including terminal harvest rates. Prior to this report, harvest rates for terminal net and sport fisheries were treated as equal between the naturals and the hatchery indicator. However, this ignored the fact that since 1999, there has been no terminal net harvest of the vast majority of natural stocks on WCVI. Consequently, indices for WCVI naturals were adjusted to

reflect this zero terminal net harvest rate. In addition, some inconsistencies were noted in the treatment of terminal harvest rates between the model and CWT indices for this stock group. These inconsistencies were eliminated.

Predicted ISBM Indices for 2009

Eight of the 19 ISBM indices for Canada, based on outputs from calibration 0907, are predicted to exceed the allowable value of 0.635 for Canadian ISBM fisheries in 2009 (Table 4). Seven of these eight stocks are Puget Sound Natural Summer/Fall stocks, and do not have CTC-accepted escapement goals. One of the eight stocks, the Lewis River, has a CTC escapement goal, but was below goal in 2008.

Eight of the 22 U.S. ISBM indices based on calibration 0907 are predicted to be above the allowable limit of 0.60 for U.S. ISBM fisheries in 2009 (Table 5). Seven of the eight have CTC agreed escapement goals: Hoh, Quillayute, Upriver Brights, Mid-Columbia Summers, Nehalem, Siletz, and Siuslaw, with the exception being Lake Washington. Of the stocks with goals, four were at or above goal in 2008, and three (the Oregon stocks) were below goal in 2008.

Table 5. U.S. 2007 ISBM indices based on CWT and the 2009 indices predicted from the PSC Chinook Model.

		U.S. ISBM Indices	
Stock Group	**Escapement Indicator Stock**	**CWT Indices for 2007**	**Model Indices for 2009**
Washington Coastal Fall Naturals	Hoko	NA [1]	0.284
	Grays Harbor	0.790	0.404
	Queets [2]	1.050	0.508
	Hoh [2]	2.230	0.981
	Quillayute [2]	1.470	0.881
Columbia River Falls	Upriver Brights [2]	3.100	0.798
	Deschutes	0.510	0.461
	Lewis [2]	0.790	0.470
Puget Sound Natural Summer / Falls	Skagit	NA	0.292
	Stillaguamish	0.120	0.446
	Snohomish	NA	0.202
	Lake Washington	NA	0.768
	Green R	0.380	0.555
Fraser Late	Harrison River [2]	0.080	0.410
Columbia R Summers	Mid-Columbia Summers [2]	1.840	1.236
Far North Migrating OR Coastal Falls	Nehalem [2,5]	2.010	2.003
	Siletz [2,5]	1.600	1.217
	Siuslaw [2,5]	1.000	1.632
North Puget Sound Natural Springs	Nooksack	NA	0.107
	Skagit	NA	0.143
Lower Strait of Georgia [3]	Cowichan,	1.550	0.367
	Nanaimo	1.550	0.367
Upper Strait of Georgia [3]	Klinaklini, Kakweikan, Wakeman, Kingcome, Nimpkish	NA	NC [4]
Fraser Early (spring and summers) [3]	Upper Fraser, Mid Fraser, Thompson	NA	0.156
West Coast Vancouver Island Falls [3]	WCVI (Artlish, Burman, Kaouk, Tahsis, Tashish, Marble)	NA	0.146
North / Central B. C. [3]	Yakoun, Nass, Skeena, Area 8	NA	NC [4]

[1] Not available (NA) because of insufficient data (lack of stock specific tag codes, base period CWT recoveries, etc).

[2] Stock with a CTC agreed escapement goal.

[3] Stock groups listed in Annex 4, Chapter 3, Attachment IV.

[4] NC means that the current model assumes the stock is not caught in U.S. ISBM fisheries.

[5] Oregon coast stocks are based on a three year average harvest rate in in-river fisheries and are thus high. In addition Base Period harvest rates were low in terminal area fisheries.

B. JOINT CHUM TECHNICAL COMMITTEE

2007 POST SEASON SUMMARY REPORT
TCCHUM (10)-1 – January 2010.

This Pacific Salmon Commission (PSC) Joint Chum Salmon Technical Committee report presents the information on chum salmon stocks and fisheries in southern British Columbia and Washington for the year 2007 to address the specific provisions and requirements of the 2007 version of Chapter 6, Annex IV of the Pacific Salmon Treaty (PST) (Attachment 1).

The treaty between the governments of Canada and the United States of America (U.S.) concerning Pacific salmon was designed to facilitate co-operation between the two countries in the management, research and enhancement of Pacific salmon stocks. Chapter 6 of Annex IV (Chum Annex) of the PST required that certain fisheries for chum salmon in southern British Columbia (B.C.) and Washington be managed in a specified manner. In each country other fisheries, while not specifically mentioned in the PST, are known to harvest chum salmon originating in the other country. This report presents various aspects of the chum found in Washington State and in B.C. waters between Vancouver Island and the mainland and off the west coast of Vancouver Island, and discusses the management actions of Canada and the U.S. in relation to the PST requirements.

In 1999 a new Chum Annex was negotiated and adopted by the parties for a term of 10 years (Appendix 1). Certain provisions of this Annex were updated, relative to earlier versions, to be consistent with the changes in the "Clockwork" management strategy implemented by Canada for fisheries in Johnstone Strait. It also included additional conservation provisions to address concerns of the United States for Hood Canal-Strait of Juan de Fuca summer chum salmon, which have been listed as a "threatened" species under the United States' Endangered Species Act.

In 2002, Canada implemented a significant change in Southern B.C. chum management replacing the "Clockwork" stepped exploitation rates in favor of a fixed fishing schedule designed to approximate a total harvest rate of 20%. The Parties managed their fisheries through 2006 within the spirit of the existing Annex and the Commission's guidance.

In 2004, the Parties were given additional Commission guidance that modified certain provisions of the Chum Annex (Appendix 2). The purpose of the guidance document was to provide Commission direction to the Southern Panel on the conduct of southern chum salmon fisheries for the years 2004 to 2008. This direction was not intended to replace Annex IV, Chapter 6 of the Pacific Salmon Treaty but to address a change in Canadian management, which suspended development of pre-season run size estimates of chum to Canadian waters. The guidance document outlined agreements on fishery modifications. One modification disconnected the harvest levels in the U.S. from catch volume in Canada. The U.S. fishery in Areas 7 and 7A was managed pursuant to the Commission guidance to the Southern Panel on the management of southern chum fisheries. Another modification further provided for an additional linkage of the U.S. fishery, in Area 7 and 7A, to the abundance of chum salmon returning to the Fraser River. Additionally, the guidance document provided for conditional exploitation rates for Canadian fisheries based on specific levels of abundance.

In 2006, a new agreement was concluded between the Government of Canada and the Government of the United States of America which amends Annex IV of the PST (1985). In 2007, the two parties managed their fisheries in accordance with this agreement as described in Attachment 1.

C. JOINT COHO TECHNICAL COMMITTEE

THE EFFECTS OF MANAGEMENT UNIT (MU) SIZE FOR PST COHO:ONE VS. FIVE MUS IN PUGET SOUND AND THE INTERIOR FRASER

TCCOHO (10)-1 – January 2010.

The Coho Technical Committee was given the task of analyzing the effects of management unit (MU) size on harvest, escapement, and fishery management processes for coho salmon under the Pacific Salmon Treaty (PST). Puget Sound is currently comprised of five separate wild coho MUs and Interior Fraser is comprised of five separate Canadian Wild Salmon Policy conservation units (CU), but is managed as a single MU. To analyze the effects of lumping or splitting these component units, we examined three hypothetical management regimes for both Puget Sound and Interior Fraser River:

1) Manage coho from each region as a single MU in all fisheries (i.e., all Puget Sound MUs would be lumped into a single MU),
2) Manage each as five separate MUs in all fisheries (i.e., each Interior Fraser CU would be managed as a seperate MU), or
3) Manage each as one aggregate MU to set PSC ceilings, but as five separate MUs in domestic fishery management processes.

We simulated these regimes under a range of abundance scenarios for each population within the MU, and projected the total harvestable numbers by using the Comprehensive Coho abundance breakpoints and exploitation rate (ER) ceilings for Puget Sound coho, and by using arbitrary breakpoints and ER ceilings for the Interior Fraser conservation units. We used the sharing formulae in the current PST Coho Annex to calculate the portion of each unit's ER that would have been harvested in each country and we also examined the management processes that would be required if the current MU configurations were changed. We drew the following general conclusions from these results:

- The current 5-MU configuration for Puget Sound coho can provide efficient management potential to achieve maximum sustainable harvest (MSH) on all populations, lower chance of under escaping weak populations, and is consistent with U.S. federal court orders. It is the preferred configuration.

- If Interior Fraser coho *can* be managed as five separate MUs (i.e., fisheries are able to target component CUs), it could result in similar management benefits as Puget Sound coho, but will require establishment of escapement objectives, harvest rates, and abundance breakpoints for the component stocks, as well as methods for measuring them.

- If fisheries *cannot* separately target the five Interior Fraser coho populations effectively, then managing them as five MUs could result in under harvests of the more productive populations (and escapements above goals for these more productive populations). Managing them as one MU would be acceptable provided that diversity within the MU is maintained and care taken to ensure that weak CUs would not be over harvested and under escaped.

D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

SALMON MANAGEMENT AND ENHANCEMENT PLANS FOR THE STIKINE, TAKU AND ALSEK RIVERS, 2009

TCTR (09)-2. – April 2009

Management of transboundary river salmon to achieve conservation, allocation and enhancement objectives, as stipulated by the Pacific Salmon Treaty (PST), requires a co-operative approach by Canada and the United States. It is important that both Parties have a clear understanding of the objectives and agree upon procedures to be used in managing the fisheries, including the criteria upon which modifications of fishing patterns will be based. This document is intended to facilitate co-operative salmon management, stock assessment and research on transboundary stocks of the Stikine, Taku, and Alsek rivers conducted by the Canadian Department of Fisheries and Oceans (DFO), the Tahltan and Iskut First Nations (TIFN), the Taku River Tlingit First Nation (TRTFN), the Champagne & Aishihik First Nation (CAFN) and the Alaska Department of Fish and Game (ADF&G).

The report contains, by river system and species, the 2009 salmon run outlooks, spawning escapement goals, a summary of harvest sharing objectives, and an outline of management procedures to be used during the conduct of the 2009 fisheries. Numerical forecasts are presented for: Stikine sockeye and Chinook and Taku Chinook, which are required by the PST; Taku sockeye and coho; and Alsek sockeye and Chinook salmon. Outlooks for other stocks are given qualitatively with reference to brood year escapement data where available. The report also contains joint plans for fry plants and egg collections and a detailed list of proposed field projects for 2009, identifying agency responsibility and contacts for the various functions within the projects.

MARK RECAPTURE STUDIES OF TAKU RIVER ADULT SOCKEYE SALMON STOCKS IN 2006

TCTR (09)-3. – June 2009.

Mark recapture studies of adult Taku River salmon *Oncorhynchus* stocks were conducted by the Department of Fisheries and Oceans Canada, the Alaska Department of Fish and Game, and the Taku River Tlingit First Nation in 2006. The objectives of the studies were to provide inseason estimates of the inriver abundance of sockeye *O. nerka* and to document biological characteristics (migratory timing, migratory rates and age, sex, and size composition) of Taku River sockeye stocks. Tagged-to-untagged ratios of salmon harvested in the Canadian inriver gillnet fisheries were used to develop the estimates of the inriver abundance of sockeye. A total of 5,282 sockeye salmon were captured in fish wheels located at Canyon Island, Alaska, of which 4,950 were tagged and 1,721 (35.0%) were subsequently recovered in fisheries or on the spawning grounds. The inriver run of sockeye salmon past Canyon Island from May 20 to October 3 was estimated to be 166,563 fish (95% confidence interval 136,116 to 197,009). Canadian commercial, aboriginal and test fisheries harvested 21,099, 120, and 262 sockeye, respectively, resulting in a spawning escapement estimate of 145,572 sockeye salmon. Based on mean date and standard deviation of migration timing the sockeye salmon run nearly two weeks late but slightly less compressed than the 1984-2005 average. The Kuthai Lake sockeye salmon stocks dominated the early portion of the run, the King Salmon and Little Trapper Lake the middle portion, and finally the Tatsamenie Lake and mainstem stocks the late portion. The Canyon Island catches of 21,726 pink salmon, 466 chum salmon and 47 steelhead salmon were 38.6% above average, 6.8% below average and 44.4% below average, respectively. The pink salmon run was six days later and slightly more compressed than average.

F. JOINT TECHNICAL COMMITTEE ON DATA SHARING

No reports were finalized for publication during this reporting period.

G. JOINT SELECTIVE FISHERY EVALUATION COMMITTEE

REVIEW OF 2009 MASS MARKING A ND MARK SELELCTIVE FISHERY PROPOSALS. SFEC (09)-1. – October 2009.

Throughout this report a mass marked (MM) fish refers to a fish with an adipose fin clip and a double index tag (DIT) group includes two CWT groups, one marked and one unmarked. The terms 'marked' and 'clipped', and likewise 'unmarked and 'unclipped', are used interchangeably.

Summary of 2009 Mass Marking Proposals

Marking Programs

Seventeen proposals (8 coho and 9 Chinook) were received for MM in 2009 (Appendix D). The Selective Fishery Evaluation Committee (SFEC) believes these proposals cover all but one MM program with international PSC implications.

Approximately 38 million coho are proposed to be MM coast wide in 2009 (Table 1; Figure 1A), a level comparable to that proposed in 2008. The vast majority of hatchery coho production intended for harvest, from southern BC and southern US hatcheries is now MM. Currently there are 19 coho salmon DIT groups (**Error! Reference source not found.**), of which the majority is released from Puget Sound or ashington coastal facilities. Two are released in BC and three from in the Columbia River basin.

Approximately 101 million Chinook are proposed to be MM in 2009 from southern US Chinook hatcheries (Table 1; Figure 1B), a level comparable to that proposed for 2008. Essentially all hatchery Chinook production from southern US hatcheries intended for harvest is now MM. The one exception is 6.7 million Up-river Brights (URBs) from the Columbia Basin. This Priest Rapids group is scheduled to be MM next year. Currently there are 16 Chinook salmon DIT groups (**Error! Reference source not ound.**), of which nine are released from Puget Sound facilities, with three spring stock releases and four fall stock releases in the Columbia River.

Sampling and DIT Programs

Assuming recent exploitation rates and sampling programs, the SFEC estimates the proposed mass marking of southern US Chinook stocks in 2009 will result in annual encounters of untagged marked Chinook in sampling program of approximately 10,000 untagged and MM Chinook in Alaska and 25,400 untagged MM Chinook in Canada, and 9,300 untagged MM Chinook in California. These estimates do not include expected encounters of the 6.7 million URBs that may be MM at Priest Rapids next year. Approximately 1,800 untagged and MM coho are projected to be encountered in Alaska and 13,800 untagged MM coho in Canadian sampling programs (Table 4).

Prior to MM, the adipose fin clip was employed as a visual indicator for fish containing a CWT. Consequently, sampling programs were designed which collected heads from fish with missing adipose fins to locate and extract CWTs. With MM, a large number of marked fish do not contain CWTs; further, CWTs must be recovered from both marked and unmarked fish to obtain data for DIT releases to estimate fishery impacts. Electronic tag detection (ETD) equipment has been developed as a means to efficiently identify marked and unmarked fish containing CWTs. However, ETD is not employed coast wide because of continuing reservations by some agencies regarding the cost and practical feasibility of incorporating this technology into their sampling programs. ADF&G, CDFO, ODFW, and CDFG all conduct sampling programs which will not recover the unclipped component of DIT programs required to assess impacts of MSFs.

Washington State (WA) continues to adequately sample and report CWT recoveries of unmarked DIT releases in marine MSFs and some freshwater MSFs. Starting in 2008, Canada also committed to full electronic sampling in all commercial fisheries for Chinook and reporting of all DIT CWTs. Coho in all commercial fisheries have also been electronically sampled with the exception of the coho landed by the Northern BC 'ice boat' fleet. Visual sampling only is used to recover CWTs in that fishery. Canada continues to rely on the Voluntary Head Recovery Program to recover CWTs from non-selective recreational fisheries and thus, no unmarked DIT recoveries are available from them.

Issues and Concerns

Proposals

Timeliness: MM proposals were submitted within the required timeframe. MSF proposals have not been consistently submitted to the PSC as required. CDFO submitted proposals for MSFs within the Fraser River and approach areas as required but did not submit any proposals for South Coast marine area fisheries until January of 2009. These included a first-time proposal for a recreational Chinook MSF on the West Coast of Vancouver Island (WCVI). Oregon has never submitted a proposal for coho MSFs in their coastal area. The SFEC recommends that agencies prioritize the task of developing proposals and have them submitted by the due date for any planned MSF in marine or freshwater.

Completeness: In general all information requested was supplied for MM proposals. The agencies did an improved job of submitting proposals for MSFs in 2009. However, some proposals were incomplete and some were never submitted. Table 6 summarizes the information missing from the proposals submitted.

Templates: An alternative template has been provided for MSF proposals, modeled on the CDFO proposals submitted in January of 2009 for 2010 fisheries. This is a spreadsheet template that provides the same information as the original MSF template.

Post Season Reports

Every year the SFEC has requested that agencies send post-season reports with information necessary for analysis of CWT data for each MSF prosecuted. In general, the agencies have not complied with this PSC requirement to provide these reports. In order to reduce duplicative reporting, the SFEC recommended that preliminary information on the conduct of MSFs be included as a component of the PST requirement for exchange of post-season fishery reports. Although some information may be available in agency reports issued at a later date, the failure to provide information requested in post-season reports interferes with SFEC's capacity to assess impacts on the viability of the CWT program and the ability to assess total mortality under PSC regimes for Chinook and Southern coho. It is recommended that agencies prioritize this task and work with their SFEC representatives to develop and provide these reports annually to the PSC in the required time frame.

New Chinook MSFs

New MSFs are proposed by WDFW in ocean fisheries in Washington Statistical Areas 1 and 2, and by WDFW and ODFW in the Columbia River on fall Chinook. CDFO provided new proposals for a Chinook MSF in the Strait of Juan de Fuca (SJDF) that was prosecuted for the first time in 2008 and for new fisheries in areas off the WCVI coast (**Error! Reference source not found.** and **Error! Reference urce not found.**). The PSC indicator stocks expected to be encountered in the Washington Statistical areas 1 and 2 and the Columbia River MSFs targeting fall Chinook are shown in **Error! Reference ource not found.**. Some of these stocks are currently DIT stocks, but the SFEC recommends that further stocks be considered for inclusion as DITs.

As MSFs are now proposed for fisheries off WCVI and WA Statistical Areas 1 and 2, fish taken in non-selective fisheries (NSFs) in all coastal areas can soon be expected to have been subject to prior MSFs. The SFEC recommends that agencies review their sampling methods with respect to the capacity to recover fish from marked and unmarked DIT groups in order to provide data for estimation of the impact of MSFs on wild stocks of interest

Mixed Bag Regulations

Regulations to implement MSF are becoming increasingly complex. Different types of mixed bag regulations are part of the MSFs proposed by Canada, Washington and Oregon for recreational fisheries. In most cases this is a mixed bag, where only marked adults may be kept but marked and unmarked juveniles may be retained, but as MSFs expand a variety of types of mixed bag regulations are being proposed (**Error! Reference source not found.**). The SFEC is not aware of adequate methods for stimating impacts on marked and unmarked fish under mixed bag regulations and the agencies proposing these mixed bag regulations should assist in developing the analytical tools to measure the impacts of these fisheries.

Recommendations and Issues Requiring PSC Direction

Proposal Review Process

It is recommended that the PSC request agencies to submit proposals for all potential 2010 MM and MSFs, and for agencies to provide both preliminary and final post-season reports on the conduct of MSFs within the timeframe adopted by the PSC. Agencies need to prioritize these tasks so that proposals and post MSF reports are completed and submitted in a timely manner.

Interagency Coordination and Cooperation

MM, DIT, and CWT sampling programs are not sufficiently coordinated to support analysis by PSC technical committees. It is also not clear that agencies are collecting adequate and necessary data to permit appropriate estimation of unmarked CWTs recoveries in fisheries and escapements so that cohort reconstructions can be carried out on unmarked DIT releases. With the expansion of Chinook marine fisheries, the geographical range of electronic CWT sampling needs to be expanded and the number of DIT stocks needs to be increased. The PSC should continue to support technical and policy processes to develop agreements to clarify responsibilities for maintaining a functional CWT system; these processes should build upon recommendations presented by the CWT Work Group in 2008. Encounters of large numbers of MM Chinook are impacting catch sampling programs in northern fisheries; for example, approximately 30% of the Chinook caught in the troll fishery with a missing adipose fin do not contain a CWT. The increased costs to deal with the additional marked fish are not quantified, but will impact the program.

Publications of the Pacific Salmon Commission

PART VI
PUBLICATIONS OF THE PACIFIC SALMON COMMISSION

Documents listed herein are available to domestic fishery agencies of Canada and the United States, research organizations, libraries, scientists and others interested in the activities of the Commission, through the offices of the Secretariat, 600 - 1155 Robson Street, Vancouver, B.C., V6E 1B5. Photocopying charges may be levied for documents which are out of print.

Reports published by the Pacific Salmon Commission after March 31, 2000 including Commission annual reports, annual reports of the Fraser River Panel, Joint Technical Committee reports and technical reports of the Pacific Salmon Commission are also available in full text format on the Commission's website at www.psc.org.

Documents listed here are those which were published during the period from 2009/10 inclusive. For previous publications, please refer to the Pacific Salmon Commission's website at www.psc.org/publications.

A. ANNUAL REPORTS

No reports were finalized for publication during this reporting period.

B. REPORTS OF JOINT TECHNICAL COMMITTEES

i. Joint Chinook Technical Committee

TCCHINOOK (09)-1 *2009 Annual Report of Catches and Escapements.* June 2009.

TCCHINOOK (09)-2 *Special Report of Chinook Technical Committee HRI Workgroup on the Evaluation of Harvest Rate Indices for use in Monitoring Harvest Rate Changes in Chinook AABM Fisheries.* October 2009.

TCCHINOOK (09)-3 *Annual Report of the Exploitation Rate Analysis and Model Calibration.* December 2009.

ii. Joint Chum Technical Committee

TCCHUM (10)-1 *2007 Post Season Summary Report.* January 2010.

iii. Joint Coho Technical Committee

TCCOHO (10)-1 *The Effects of Management Unit (MU) Size for PST Coho: One vs. Five MUs in Puget Sound and the Interior Fraser.* January 2010.

iv. Joint Data Sharing Technical Committee

No reports were finalized for publication during this reporting period.

v. Joint Northern Boundary Technical Committee

No reports were finalized for publication during this reporting period.

vi. Joint Transboundary Technical Committee

TCTR(09)-2 *Salmon Management and Enhancement Plans for the Stikine, Taku and Alsek Rivers, 2009.* April 2009.

vii. Selective Fishery Evaluation Committee

SFEC (09)-1 *Review of 2009 Mass Marking and Mark Selective Fishery Proposals.* October 2009

C. REPORTS OF THE FRASER RIVER PANEL

Report of the Fraser River Panel to the Pacific Salmon Commission on the 2005 Fraser River Sockeye Salmon Fishing Season. PSC Staff. October 2009.

D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

Andel, J.E. and I.M. Boyce. *Mark-Recapture Studies of Taku River Adult Sockeye Salmon Stocks in 2006.* PSC Tech. Rep. No. 26, June 2009.

E. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

Forrest, K.W, Cave, J.D., Michielsens, C.G.J., Haulena, M. and Smith, D.V. (2009) ***Evaluation of an electric gradient to deter seal predation on salmon caught in gill-net test fisheries***. North American Journal of Fisheries Management 29(4): 885-894.

F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON COMMISSION

Responsibility for maintenance of the library of the International Pacific Salmon Fisheries Commission, on its termination December 31, 1985, was transferred to the Pacific Salmon Commission. Documents in the Library include historical archival papers which are available to researchers and other interested parties through contact with the Pacific Salmon Commission's Librarian.

Publication of John F. Roos' History of the International Pacific Salmon Fisheries Commission, and P. Gilhousen's Estimation of Fraser River Sockeye Escapements ended all publication series of the International Pacific Salmon Fisheries Commission. Copies of all in-print Progress Reports and Bulletins of the International Pacific Salmon Fisheries Commission are available free of charge through the Library of the Pacific Salmon Commission. Copies of the History of the International Pacific Salmon Fisheries Commission may also be ordered through the Library of the Pacific Salmon Commission.

G. DOCUMENTS SUBMITTED BY THE PARTIES

In compliance with provisions of the Treaty, the Parties provide annual post-season fishery reports and updates on their respective salmonid enhancement programs to the Commission. Documents received during 2009/10 were:

> *Post Season Report for 2009 Canadian Treaty Limit Fisheries*. Canada Department of Fisheries and Oceans. January, 2010.
>
> *Preliminary 2009 Post Season Report for United States Salmon Fisheries of Relevance to the Pacific Salmon Treaty.* United States Section, Pacific Salmon Commission. December, 2009

Report of the Auditors for 2009/2010

PART VII

AUDITORS' REPORT AND FINANCIAL STATEMENTS FOR THE PERIOD APRIL 1, 2009 TO MARCH 31, 2010

Financial Statements of

PACIFIC SALMON COMMISSION

Year ended March 31, 2010

KPMG

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AUDITORS' REPORT TO THE COMMISSIONERS

We have audited the statement of financial position of the Pacific Salmon Commission (the "Commission") as at March 31, 2010 and the statements of operations and fund balances and cash flows for the year then ended. These financial statements have been prepared to comply with the Treaty between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon (the "Treaty"). These financial statements are the responsibility of the Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the Commission, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Commission as at March 31, 2010 and the results of its operations and its cash flows for the year then ended in accordance with the basis of accounting described in note 2(a) to the financial statements.

These financial statements, which have not been, and were not intended to be, prepared in accordance with Canadian generally accepted accounting principles, are solely for the information and use of the Commissioners for complying with the Treaty. The financial statements are not intended to be and should not be used by anyone other than the specified users or for any other purpose.

KPMG LLP

Chartered Accountants

Burnaby, Canada
June 4, 2010

PACIFIC SALMON COMMISSION

Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2010, with comparative figures for 2009

		Restricted						
	General Fund	Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund	Total	2010	2009
Assets								
Current assets:								
Cash	$ 643,526	$ 98,022	$ 474,442	$ 190,995	$ -	$ 763,459	$ 1,406,985	$ 2,572,222
Accounts receivable	89,497	-	-	-	-	-	89,497	64,067
Prepaid expenses	34,680	-	-	-	-	-	34,680	35,516
Short-term investments	50,000	-	-	-	-	-	50,000	50,000
	817,703	98,022	474,442	190,995	-	763,459	1,581,162	2,721,805
Capital assets (note 3)	-	-	-	-	471,046	471,046	471,046	498,773
	$ 817,703	$ 98,022	$ 474,442	$ 190,995	$ 471,046	$ 1,234,505	$ 2,052,208	$ 3,220,578
Liabilities and Fund Balances								
Current liabilities:								
Accounts payable and accrued liabilities	$ 237,183	$ -	$ -	$ -	$ -	$ -	$ 237,183	$ 338,819
Due to Trusts (note 6)	7,086	-	-	-	-	-	7,086	217
Accrued benefit liability (note 5)	243,361	-	-	-	-	-	243,361	329,635
Deferred revenue	-	-	-	-	-	-	-	845,954
	487,630	-	-	-	-	-	487,630	1,514,625
Fund balances:								
Unrestricted	330,073	-	-	-	-	-	330,073	464,696
Restricted	-	98,022	474,442	190,995	-	763,459	763,459	742,484
Invested in capital assets	-	-	-	-	471,046	471,046	471,046	498,773
	330,073	98,022	474,442	190,995	471,046	1,234,505	1,564,578	1,705,953
	$ 817,703	$ 98,022	$ 474,442	$ 190,995	$ 471,046	$ 1,234,505	$ 2,052,208	$ 3,220,578

See accompanying notes to financial statements.

Approved on behalf of the Commission:

W. Ron Allen

Chair, Standing Committee on Finance and Administration

Paul Macgillivray

Vice-Chair, Standing Committee on Finance and Administration

PACIFIC SALMON COMMISSION

Statement of Operations and Fund Balances
(Expressed in Canadian dollars)

Year ended March 31, 2010, with comparative figures for 2009

		Restricted						
	General Fund	Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund	Total	2010	2009
Revenue:								
Contributions from contracting parties (note 6)	$ 3,495,020	$ -	$ -	$ -	$ -	$ -	$ 3,495,020	$ 3,458,306
Grants	135,525	-	-	1,338,837	-	1,338,837	1,474,361	222,593
Interest	155	-	-	-	-	-	155	52,012
Other	35,149	-	-	-	-	-	35,149	7,898
Gain on disposal of capital assets	-	-	-	-	-	-	-	8,805
Test fishing	1,113,468	-	-	-	-	-	1,113,468	894,354
	4,779,317	-	-	1,338,837	-	1,338,837	6,118,154	4,643,968
Expenses:								
Amortization	-	-	-	-	191,145	191,145	191,145	212,082
Salaries and employee benefits	2,738,490	-	-	-	-	-	2,738,490	2,556,901
Travel and transportation	100,889	-	-	-	-	-	100,889	106,412
Rents and communication	114,320	-	-	-	-	-	114,320	113,857
Printing and reproductions	3,569	-	-	-	-	-	3,569	12,072
Contract services	619,350	-	-	-	-	-	619,350	526,817
Materials and supplies	56,166	-	-			-	56,166	48,864
Test fishing	1,183,109	-	-	-	-	-	1,183,109	894,354
Loss on disposal of capital assets	-	-	-	-	4,269	4,269	4,269	-
Consultations and workshops	-	330	-	1,247,891	-	1,248,221	1,248,221	116,209
	4,815,894	330	-	1,247,891	195,414	1,443,635	6,259,529	4,587,568
Excess (deficiency) of revenue over expenses	(36,577)	(330)	-	90,946	(195,414)	(104,798)	(141,375)	56,400
Fund balance, beginning of year	464,696	98,352	544,083	100,049	498,773	1,241,257	1,705,953	1,649,553
Interfund transfers	(98,046)	-	(69,641)	-	167,687	98,046	-	-
Fund balance, end of year	$ 330,073	$ 98,022	$ 474,442	$ 190,995	$ 471,046	$ 1,234,505	$ 1,564,578	$ 1,705,953

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2010, with comparative figures for 2009

	2010	2009
Cash provided by (used in):		
Operations:		
Excess (deficiency) of revenue over expenses	$ (141,375)	$ 56,400
Items not involving cash:		
Amortization	191,145	212,082
Loss (gain) on sale of capital assets	4,269	(8,805)
Net change in non-cash operating working capital	(1,051,589)	(53,404)
	(997,550)	206,273
Investing:		
Additions to capital assets	(174,662)	(204,897)
Proceeds on sale of capital assets	6,975	10,042
	(167,687)	(194,855)
Increase (decrease) in cash	(1,165,237)	11,418
Cash, beginning of year	2,572,222	2,560,804
Cash, end of year	$ 1,406,985	$ 2,572,222

See accompanying notes to financial statements.

1. Nature of organization:

The Pacific Salmon Commission (the "Commission") was established by the Treaty between the Governments of Canada and the United States of America (the "Contracting Parties") to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Treaty was ratified on March 18, 1985 and most recently renewed on December 23, 2008. The Commission commenced operations on September 26, 1985.

2. Significant accounting policies:

(a) Basis of accounting:

These financial statements present the financial position and results of operations of the Commission to comply with the requirements of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific Salmon, and may not be appropriate for other purposes. As required by Chapter IX Section D of the Commission Bylaws, the financial statements are prepared on an accrual basis except that expenses are recognized at the time that the commitment for goods and services are made through purchase orders, rather than at the time that the goods or services are delivered. In all other material respects, these financial statements have been prepared in accordance with Canadian generally accepted accounting principles for not-for-profit entities.

(b) Fund accounting and revenue recognition:

(i) Revenue recognition:

The Commission follows the restricted fund method of accounting for contributions.

Restricted contributions related to general operations are initially deferred and recognized as revenue of the General Fund in the year in which the related expenses are incurred. All other restricted contributions are recognized as revenue of the appropriate restricted fund.

Unrestricted contributions are recognized as revenue of the General Fund in the year they are received or receivable, if the amount to be received can be reasonably estimated and collection is reasonably assured.

The Fund classifications are as follows:

(i) The General Fund includes funds provided annually through contributions from the Contracting Parties. By agreement of the Contracting Parties, any unexpended balance remaining at the end of one fiscal year may be used to offset contributions in the following year or may be used to offset a shortfall between contributions and approved expenses in the following year.

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2. Significant accounting policies: (continued)

(b) Fund accounting and revenue recognition (continued):

(ii) The Working Capital Fund represents monies contributed by the Contracting Parties to be used temporarily pending receipt of new contributions from the Contracting Parties at the beginning of a fiscal year, or for special programs not contained in the regular budget but approved during the fiscal year. Any surplus above a pre-determined fixed limit in the account at the end of the fiscal year is transferred to the general fund and is treated as unrestricted income.

(iii) The Test Fishing Fund is established as a revolving fund in which a portion of net test fishing revenues realized in years of high abundance are reserved, to be used to support test fishing programs in years of low abundance and when conservation concerns are an issue.

(iv) The Special Research and Project Fund represents monies set aside to fund additional programs as determined by the Contracting Parties, including studies related to Coho salmon, Bilateral Workshop for Genetics Analysis Pacific Salmonids Group and US Grant Funds for Chinook Technical Committee Support.

(v) The Capital Assets Fund reflects the Commission's capital asset transactions. Amortization is charged to the Capital Fund.

(c) Financial instruments:

The Commission accounts for its financial instruments in accordance with Canadian Institute of Chartered Accountants ("CICA") Handbook Section 3855, *Financial Instruments - Recognition and Measurement* and CICA Handbook Section 3861, *Financial Instruments - Disclosure and Presentation*.

Under Handbook Section 3855, all financial instruments are classified into one of the following five categories: held for trading, held-to-maturity investments, loans and receivables, available-for-sale financial assets or other financial liabilities. All financial instruments, including derivatives, are included on the statement of financial position and are measured at fair market value, with the exception of loans and receivables, investments held-to-maturity and other financial liabilities, which are measured at amortized cost. Measurement in subsequent periods depends on whether the financial instrument has been classified as held for trading, available-for-sale, held-to-maturity, loans and receivables, or other financial liabilities.

The Commission's financial instruments are cash, accounts receivable, interest receivable, short-term investments, accounts payable and accrued liabilities and due to Trusts.

The Commission has elected to defer adoption of CICA Handbook section 3862 and 3863 and to continue to apply the financial instrument disclosure and presentation standards in accordance with CICA Handbook Section 3861 as permitted for not-for-profit organizations.

2. Significant accounting policies: (continued)

(c) Financial instruments (continued):

The Commission classifies its cash and short-term investments as held for trading, meaning that the financial assets are measured initially at fair value with transaction costs recognized immediately in the statement of operations. These assets are subsequently measured at fair value with gains and losses recognized in the statement of operations.

The Commission classifies its accounts receivable as loans and receivables which are recorded at amortized cost. The Commission classifies its accounts payable and accrued liabilities, accrued benefit liability and due to Trusts as other liabilities which are recorded at amortized cost.

(d) Trust funds:

(i) The Commission administers and holds in trust on behalf of the Trustees, the Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and the Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts"). The assets, liabilities, revenue and expenses of these trust funds are not included in the Commission's financial statements. The Commission does not control the Trusts but has significant influence through common board representation.

(ii) The Commission also administers and holds amounts in trust funds on behalf of the Government of the United States to disburse U.S. section salary under a Memorandum of Understanding. The Commission also holds funds on behalf of the U.S. Government to be disbursed as directed by the U.S. Section of the PSC. The assets, liabilities, revenue and expenses of these trust funds are not included in the Commission's financial statements.

(iii) The Commission holds funds on behalf of Canada to be disbursed for Test Fishing programs under a Joint Project Agreement.

(e) Capital assets:

Capital assets are stated at cost less accumulated amortization. Costs of repairs and replacements of a routine nature are charged as a current expense while those expenses which improve or extend the useful life of the assets are capitalized. Amortization is provided using the straight-line method of rates sufficient to amortize the costs over the estimated useful lives of the assets.

Automobiles	5 years
Boats	5 years
Computer equipment and software	3.3 years
Equipment	5 years
Furniture and fixtures	10 years
Leasehold improvements	Over life of lease

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2. Significant accounting policies: (continued)

(f) Income taxes:

The Commission is a non-taxable organization under the Foreign Missions and International Organizations Act (1991).

(g) Post-employment benefits:

The Commission provides certain employee future benefits, including a defined benefit pension plan, which is funded by the Commission on an annual basis, and severance, life insurance and medical benefits, which are funded by the Commission as they become due.

The Commission accrues its obligations under employee benefit plans and the related costs as benefits are earned, net of returns on plan assets.

The Commission's policies are as follows:

(i) The cost of retirement benefits earned by employees is actuarially determined using the projected benefit method prorated on service and management's best estimate of salary escalation and retirement ages of employees.

(ii) The expected interest cost on any prior service obligation is calculated using management's estimate for the long-term rate of return.

(iii) The expected return on plan assets is calculated at a market-related value for the assets.

(iv) Any cumulative unrecognized actuarial gains and losses in excess of 10% of the projected benefit obligation will be amortized over the expected average remaining service life of the employee group covered by the program.

(v) As at January 1, 2010, the Commission had an unamortized transitional obligation of $10,165 (2009 - $27,049), which is being amortized over the average remaining service period of covered employees. The average remaining service life of the related employee group is 15 years and the average remaining service life of the employee group of the supplemental executive retirement plan is 2 years.

(h) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Assets and liabilities denominated in foreign currency at the balance sheet date are translated to equivalent Canadian amounts at the current rate of exchange. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

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2. Significant accounting policies (continued):

(i) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant areas requiring the use of management estimates relate to the determination of the valuation of accounts receivable, useful lives of capital assets for amortization and accrued liabilities. Actual results could differ from those estimates. Adjustments, if any, will be reflected in operations in the period of settlement.

(j) Adoption of accounting policies:

Revisions to Not-for-Profit accounting standards:

In September 2008, the CICA issued amendments to Handbook Sections 4400, *Financial Statement Presentation by Not-for-Profit Organizations*, and 4470, *Disclosure of Allocated Expenses by Not-for-Profit Organizations*. The amendments, which are effective for the Commission's fiscal year ended March 31, 2010, remove the requirement to disclose net assets invested in capital assets, clarify capital asset recognition criteria and amortization, expand interim financial statement requirements to not-for-profit organizations that prepare interim financial statement, require disclosure of allocated fundraising and general support expenses and include the requirement to follow Handbook Section 1540, *Cash Flow Statements*. The adoption of these standards by the Commission has not had a material impact on its financial statements.

(k) Future accounting changes:

Changes in accounting framework:

The Commission is classified as a not-for-profit organization. The Accounting Standards Board has released an exposure draft in 2010 relating to the future of financial reporting by not-for-profit organizations. Under the proposed standards, the Commission would prepare its financial statements in accordance with IFRS, or with the new Canadian Private Enterprise reporting framework, with specific not-for-profit standards to supplement. The Commission is in the process of reviewing the potential impact of the proposals on its reporting framework and financial statements.

3. Capital assets:

	Cost	Accumulated amortization	2010 Net book value	2009 Net book value
Automobiles	$ 226,544	$ 155,657	$ 70,887	$ 64,522
Boats	134,688	121,288	13,400	10,146
Computer equipment	714,356	631,698	82,658	78,389
Computer software	199,012	187,616	11,396	17,193
Equipment	1,323,632	1,108,969	214,663	234,073
Furniture and fixtures	303,924	281,231	22,693	29,171
Leasehold improvements	133,519	78,170	55,349	65,279
	$ 3,035,675	$ 2,564,629	$ 471,046	$ 498,773

4. General fund balance:

The Commission has approved a carryover of the unexpended funds in the general fund to be utilized as follows:

	2010	2009
Continuing operations	$ 295,393	$ 429,180
Reserve for prepaid expenses	34,680	35,516
	$ 330,073	$ 464,696

5. Employee future benefits:

The Commission and its employees contribute to the Pension Plan of the International Fisheries Commissions Pension Society for Employees of Participating Commissions with Headquarters in Canada, a multi-employer defined benefit plan. The plan covers 68 employees, of which 40 are current or past employees of the Commission. The Commission also provides employee future benefits including severance, life insurance and medical benefits.

5. Employee future benefits (continued):

The Commission's liabilities are based on an actuarial valuation using an early measurement date of January 1, 2010.

	Pension plan	Severance, life insurance and medical benefits	2010	2009
Reconciliation of accrued benefit obligation:				
Opening fair value of accrued benefit obligation	$(6,885,000)	$ (533,900)	$ (7,418,900)	$ (8,589,200)
Current service cost	(282,201)	(30,100)	(312,301)	(295,724)
Benefits paid	245,853	58,869	304,722	196,986
Interest cost	(493,099)	(37,420)	(530,519)	(483,039)
Actuarial gain (loss)	(1,639,553)	(111,649)	(1,751,202)	1,752,077
Ending fair value of accrued benefit obligation	$(9,054,000)	$ (654,200)	$ (9,708,200)	$ (7,418,900)

	Pension plan	Severance, life insurance and medical benefits	2010	2009
Reconciliation of plan assets:				
Opening fair value of plan assets	$ 5,529,680	$ -	$ 5,529,680	$ 6,218,642
Actual return (loss) on plan assets	817,724	-	817,724	(873,309)
Employer contributions	448,912	58,869	507,781	282,330
Employee contributions	100,989	-	100,989	99,003
Benefits paid	(245,853)	(58,869)	(304,722)	(196,986)
Ending fair value of plan assets	$ 6,651,452	$ -	$ 6,651,452	$ 5,529,680
Net unfunded obligation	$ (2,402,548)	$ (654,200)	$(3,056,748)	$(1,889,220)
Unamortized transitional obligation (asset)	10,165	-	10,165	27,049
Unamortized net actuarial loss	2,603,679	199,543	2,803,222	1,532,536
Accrued benefit asset (liability)	$ 211,296	$ (454,657)	$ (243,361)	$ (329,635)

The significant actuarial assumptions adopted in measuring the Commission's accrued pension benefit liability are as follows:

	2010	2009
Discount rate	5.7%	7.0%
Expected long-term rate of return on plan assets	7.0%	7.0%
Rate of compensation increase	3.5%	3.5%

5. Employee future benefits (continued):

The plan asset portfolio currently comprises equity investments and debt. Equity investments are 59.01% (2009 - 55.67%) of the portfolio and include Canadian and International investments. Debt is 40.99% (2009 - 44.33%) of the portfolio and comprises short-term debt, bonds and mortgages. The asset mix is reviewed periodically and may vary in the future.

The Commission's net benefit plan expense is as follows:

	2010	2009
Current service cost (less employees contributions)	$ 211,312	$ 192,821
Interest cost	530,519	483,039
Expected return on plan assets	(397,719)	(441,757)
Amortization of transitional (asset) obligation	16,884	16,884
Amortization of past service cost	244	-
Amortization of net actuarial loss	60,267	70,184
Net benefit plan expense	$ 421,507	$ 321,171

The net benefit plan expense is included in salaries and employee benefits on the statement of operations and fund balances.

6. Related parties:

The Commission's related parties are the Contracting Parties and the Trusts.

During the fiscal year ended March 31, 2010, the Commission received contributions from Contracting Parties totaling $3,495,202 (2009 - $3,458,306). The Commission incurred no expenses to the Contracting Parties during the year.

The Commission received $nil (2009 - $836,385) of contributions from one of the Contracting Parties relating to fiscal year March 31, 2011.

During the fiscal year ended March 31, 2010, the Commission received funding for projects from the Trusts totaling $135,525 (2009 - $117,099). The full amount of $135,525 (2009 - $107,529) was recorded as revenue and $ nil (2009 - $9,570) was recorded as deferred income.

As at March 31, 2010, the Commission had a net payable to the Trusts of $7,086 (2009 - $217).

The office and warehouse premises of the Commission are provided by the Government of Canada with no charge.

7. Trust funds:

The Commission administers and holds in trust the following funds which are not included in the Commission's financial statements:

(a) Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Northern Boundary") was created by the Governments of the United States of America and Canada to manage its interest in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Northern Boundary is a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission as directed by the Northern Enhancement Committee.

(b) Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Southern Boundary") was created by the Governments of the United States of America and Canada to manage its interest in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Southern Boundary is defined as a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission as directed by the Southern Enhancement Committee.

(c) Payroll Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States to distribute U.S. section salary under a Memorandum of Understanding. These amounts have been excluded from the statement of financial position and statement of operations and fund balances of the Commission.

(d) U.S. Expenditures Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States of America. They are to be expended at the direction of the Government of the United States of America. These amounts have been excluded from the statements of financial position and statement of operations and fund balances of the Commission.

(e) Canadian Test Fish Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of Canada. These funds are held pursuant to a Joint Project Agreement related to the test fishing programs outside the Pacific Salmon Commission's fishery management area. They are to be expended at the direction of the Government of Canada. These amounts have been excluded from the statements of financial position and statement of operations and fund balances of the Commission.

7. Trust funds (continued):

(f) Summary of trust fund balances:

	Northern Boundary	Southern Boundary	US Payroll Trust Funds	US Expenditure Trust Funds	Canadian Expenditure Trust Funds	2010 Total	2009 Total
Assets	$ 100,536,759	$ 83,069,702	$ 13,984	$ 718,528	$ 226,178	$ 184,565,151	$ 162,053,704
Liabilities and fund balances							
Liabilities	$ 95,265	$ 80,114	$ 13,984	$ 718,528	$ 226,178	$ 1,134,069	$ 670,729
Fund balances	100,441,494	82,989,588	-	-	-	183,431,082	161,382,975
	$ 100,536,759	$ 83,069,702	$ 13,984	$ 718,528	$ 226,178	$ 184,565,151	$ 162,053,704

	Northern Boundary	Southern Boundary	Trust Funds	Trust Funds	Trust Funds	2010 Total	2009 Total
Fund balance, beginning of year	$ 88,294,579	$ 73,088,396	$ -	$ -	$ -	$ 161,382,975	$ 209,088,613
Revenue	19,340,658	16,281,183	-	-	-	35,621,841	(51,685,361)
Expenses	7,193,743	6,379,991	-	-	-	13,573,734	3,979,723
Fund balance, end of year	$ 100,441,494	$ 82,989,588	$ -	$ -	$ -	$ 183,431,082	$ 161,382,975

Cash flow provided by (used in):

	Northern Boundary	Southern Boundary	Trust Funds	Trust Funds	Trust Funds	2010 Total	2009 Total
Operations	$ 916,628	$ 955,137	-	-		$ 1,871,765	$ (8,101,296)

8. Capital management:

The Commission receives its principal source of capital through contributions received from the Contracting Parties. The Commission defines capital to be net assets.

The Commission's objective when managing capital is to fund its operational requirements and capital asset additions. The Commission makes adjustments to expenditures based on available government funding and economic conditions. Currently, the Commission's strategy is to monitor expenditures to preserve capital in accordance with available and budgeted funding.

8. Capital management (continued):

The Commission is not subject to debt covenants or any other capital restrictions with respect to operating funding. Funding received for designated purposes must be used for the purpose outlined in the Treaty, Bylaws, budget and funding instructions. The Commission has complied with the external restrictions on the funding provided.

9. Contractual obligations:

The Commission has entered into a number of project grant contracts as at March 31, 2010 for the future funding of research projects to be completed subsequent to the year end.

These contractual obligations are funded in installments and payments are due based on conditions included in the contract being satisfied. As such, no liability has been accrued in the financial statements as the Commission is not liable until these conditions have been met.

The research project contractual obligations are $347,036 (2009 - $ nil) as at March 31, 2010.

10. Financial instruments:

(a) Credit risk:

Credit risk is the risk that a third party to a financial instrument might fail to meet its obligations under the terms of the financial instrument. For cash and accounts receivable, the Commission's credit risk is limited to the carrying value on the balance sheet. Management does not believe that the Commission is subject to any significant concentration of credit risk.

(b) Liquidity risk:

Liquidity risk is the risk that an entity will not be able to meet its obligations associated with financial liabilities.

The Commission manages liquidity risk by maintaining adequate cash and available credit facilities with its banking provider. The Commission monitors the cash flow to ensure a sufficient continuity of funding from the contracting parties.

(c) Interest rate risk:

The Commission is not exposed to significant interest risk as it does not have amounts payable that are charged interest.

11. Comparative figures:

Certain comparative figures have been reclassified to conform with the financial statement presentation adopted in the current year.

Combined Financial Statements of

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Year ended March 31, 2010

KPMG LLP
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AUDITORS' REPORT TO THE TRUSTEES

We have audited the combined statement of financial position of The Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and The Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts") as at March 31, 2010, and the combined statement of operations and fund balance and cash flows for the year then ended. These financial statements have been prepared on a combined basis to meet the reporting requirements of the Trustees. These combined financial statements are the responsibility of the Trust's management. Our responsibility is to express an opinion on these combined financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these combined financial statements present fairly, in all material respects, the financial position of the Trusts as at March 31, 2010 and the results of its operations and its cash flows for the year then ended in accordance with the basis of accounting described in note 2 to the financial statements.

These combined financial statements, which have not been, and were not intended to be, prepared in accordance with Canadian generally accepted accounting principles, are intended for the information and use of the management and trustees of the Trusts, the Government of Canada and the Government of the United States of America. The combined financial statements are not intended to be and should not be used by anyone other than the specified users or for any other purpose.

KPMG LLP

Chartered Accountants

Burnaby, Canada
June 4, 2010

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NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND
and
SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Combined Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2010, with comparative figures for 2009

	Northern Boundary	Southern Boundary	2010 Total	2009 Total
Assets				
Current assets:				
Cash and cash equivalents	$ 4,850,462	$ 3,052,702	$ 7,903,164	$ 6,031,399
Due from Pacific Salmon Commission (note 8)	-	7,342	7,342	24,384
Interest receivable	78	72	150	277
	4,850,540	3,060,116	7,910,656	6,056,060
Investments (note 3)	95,686,219	80,009,586	175,695,805	155,519,977
	$ 100,536,759	$ 83,069,702	$ 183,606,461	$ 161,576,037
Liabilities and Fund Balance				
Current liabilities:				
Accounts payable and accrued liabilities	$ 95,009	$ 80,114	$ 175,123	$ 168,895
Due to Pacific Salmon Commission (note 8)	256	-	256	24,167
Fund balance	100,441,494	82,989,588	183,431,082	161,382,975
	$ 100,536,759	$ 83,069,702	$ 183,606,461	$ 161,576,037

See accompanying notes to combined financial statements

Contractual obligations (note 4)
Minimum fund balance (note 5)

Approved on behalf of the Trustees:

U.S. Co- Chair Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund

Can Co- Chair Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund

U.S. Co- Chair Southern Boundary Restoration and Enhancement Fund

Can Co- Chair Southern Boundary Restoration and Enhancement Fund

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND
and
SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND
Combined Statement of Operations and Fund Balance
(Expressed in Canadian dollars)

Year ended March 31, 2010, with comparative figures for 2009

	Northern Boundary	Southern Boundary	2010 Total	2009 Total
Investment income (loss)	$ 19,340,658	$ 16,281,183	$ 35,621,841	$ (51,685,361)
Expenses:				
Administrative services (note 6)	133,482	133,482	266,964	253,724
Travel and accommodation	12,843	8,807	21,650	46,299
Rents and communications	136	325	461	2,107
Contract services	22,452	29,014	51,466	59,116
Investment management services	518,853	441,547	960,400	1,065,277
Project grants	1,134,423	1,244,018	2,378,441	7,083,413
Materials and supplies	238	292	530	1,434
	1,822,427	1,857,485	3,679,912	8,511,370
Foreign exchange gain (loss)	(5,371,316)	(4,522,506)	(9,893,822)	12,491,093
Excess (deficiency) of revenue over expenses	12,146,915	9,901,192	22,048,107	(47,705,638)
Fund balance, beginning of year	88,294,579	$ 73,088,396	161,382,975	209,088,613
Fund balance, end of year (note 5)	$ 100,441,494	$ 82,989,588	$ 183,431,082	$ 161,382,975

See accompanying notes to combined financial statements.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Combined Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2010, with comparative figures for 2009

	Northern Boundary	Southern Boundary	2010 Total	2009 Total
Cash provided by (used in):				
Operations:				
Excess (deficiency) of revenue over expenses	$ 12,146,915	$ 9,901,192	$ 22,048,107	$ (47,705,638)
Non-cash item:				
Fair value adjustment on held for trading investments	(11,258,650)	(8,917,178)	(20,175,828)	39,392,264
Change in non-cash operating working capital:				
Due from (to) Pacific Salmon Commission	24,640	(31,509)	(6,869)	196,483
Interest receivable	100	27	127	(33,748)
Accounts payable and accrued liabilities	3,623	2,605	6,228	(18,153)
Increase (decrease) in cash and cash equivalents	916,628	955,137	1,871,765	(8,101,296)
Cash and cash equivalents, beginning of year	3,933,834	2,097,565	6,031,399	14,132,695
Cash and cash equivalents, end of year	$ 4,850,462	$ 3,052,702	$ 7,903,164	$ 6,031,399

See accompanying notes to combined financial statements.

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1. Nature of organization:

The Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and the Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts") were created by the Governments of the United States of America and Canada (the "Contracting Parties") to promote cooperation in the management, research and enhancement of Pacific salmon stocks.

2. Significant accounting policies:

(a) Basis of presentation and accounting:

These financial statements have been prepared in accordance with the significant accounting policies set out below. These financial statements differ from Canadian generally accepted accounting principles as they are presented on a combined basis in order to reflect the common administration of the Trusts by the management of the Pacific Salmon Commission.

These combined financial statements present the financial position and results of operations of the Trusts in accordance with Canadian generally accepted accounting principles ("Canadian GAAP") for not-for-profit organizations, except as described above.

(b) Financial instruments:

The Trusts account for their financial instruments in accordance with Canadian Institute of Chartered Accountants ("CICA") Handbook Section 3855, *Financial Instruments - Recognition and Measurement,* and CICA Handbook Section 3861, *Financial Instruments - Disclosure and Presentation*.

Under Handbook Section 3855, all financial instruments are classified into one of the following five categories: held for trading, held-to-maturity investments, loans and receivables, available-for-sale financial assets or other financial liabilities. All financial instruments, including derivatives, are included on the statement of financial position and are measured at fair market value, with the exception of loans and receivables, investments held-to-maturity and other financial liabilities, which are measured at amortized cost. Measurement in subsequent periods depends on whether the financial instrument has been classified as held for trading, available-for-sale, held-to-maturity, loans and receivables, or other financial liabilities.

2. Significant accounting policies (continued):

(b) Financial instruments (continued):

The Trusts' financial instruments are cash and cash equivalents, due from (to) Pacific Salmon Commission, interest receivable, investments and accounts payable and accrued liabilities. The Trusts classify their cash and cash equivalents and investments as held for trading, meaning that the financial assets are measured initially at fair value with transaction costs recognized immediately in the statement of operations. These assets are subsequently measured at fair value with gains and losses recognized in the statement of operations.

The Trusts classify their due from (to) Pacific Salmon Commission and interest receivable as loans and receivables (other financial liabilities) which are recorded at amortized cost. The Trusts classify their accounts payable and accrued liabilities as other liabilities which are recorded at amortized cost.

The fair values of amounts due to and from Pacific Salmon Commission are not practicable to determine due to their related party nature and terms and the limited amount of comparable market information available.

In September 2008, the Accounting Standards Board agreed that non-publicly accountable enterprises such as the Trusts currently need not apply the new financial instrument standards CICA Handbook Section 3862, *Financial Instruments – Disclosure,* and CICA Handbook Section 3863, *Financial Instruments – Presentation,* and consequently, the Trusts have deferred the adoption of these standards.

(c) Cash and cash equivalents:

Cash and cash equivalents are comprised of cash on hand and short term deposits with original maturities of three months or less.

(d) Income taxes:

The Trusts are non-taxable organizations under the Foreign Missions and International Organizations Act (1991).

2. Significant accounting policies (continued):

(e) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate in effect at the transaction dates. Monetary items and non-monetary assets that are carried at market denominated in foreign currency at the balance sheet date are translated to equivalent Canadian amounts at the exchange rate in effect at the balance sheet date. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

(f) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Adjustments, if any, will be reflected in operations in the period of settlement or when estimates change.

(g) Contractual obligations:

Contractual obligations are funded in instalments and payments are due based on conditions included in the contract being satisfied. Expenses and liabilities are recognized in the financial statements as these conditions are met.

(h) Adoption of accounting policies:

Revisions to Not-for-Profit accounting standards:

In September 2008, the CICA issued amendments to Handbook Sections 4400, *Financial Statement Presentation by Not-for-Profit Organizations*, and 4470, *Disclosure of Allocated Expenses by Not-for-Profit Organizations*. The amendments, which are effective for the Trusts' fiscal year ended March 31, 2010, remove the requirement to disclose net assets invested in capital assets, clarify capital asset recognition criteria and amortization, expand interim financial statement requirements to not-for-profit organizations that prepare interim financial statement, require disclosure of allocated fundraising and general support expenses and include the requirement to follow Handbook Section 1540, *Cash Flow Statements*. The adoption of these standards by the Trusts' has not had a material impact on its financial statements.

2. Significant accounting policies (continued):

(i) Future accounting policies:

Changes in accounting framework:

The Trusts' are classified as not-for-profit organizations. The Accounting Standards Board and Public Sector Accounting Board have released an exposure draft in 2010 relating to the future of financial reporting by not-for-profit organizations. Under the proposed standards, the Trusts would prepare their financial statement in accordance with IFRS, or with the new Canadian Private Enterprise reporting framework, with specific not-for-profit standards to supplement. The Trusts are in the process of reviewing the potential impact of the proposals on their reporting framework and financial statements.

3. Investments:

Investments consist of mutual funds under the supervision of a custodian and consist of the following managed funds:

	Northern Boundary	Southern Boundary	2010 Total	2009 Total
International Equity Fund	$ 17,761,360	$ 14,851,450	$ 32,612,810	$ 26,828,254
US Equity Fund	28,789,039	24,072,422	52,861,461	43,537,318
Global Equity Fund	21,557,924	18,026,008	39,583,932	34,239,839
Canadian Bond	27,577,896	23,059,706	50,637,602	50,914,566
	$ 95,686,219	$ 80,009,586	$ 175,695,805	$ 155,519,977
Historical cost	$ 103,568,864	$ 87,274,304	$ 190,843,168	$ 206,813,402

4. Contractual obligations:

The Trusts have entered into a number of project grant contracts as at March 31, 2010 for the future funding of research projects to be completed subsequent to the year end.

These contractual obligations are funded in installments and payments are due based on conditions included in the contract being satisfied. As such, no liability has been accrued in the financial statements as the Trusts are not liable until these conditions have been met.

The research project contractual obligations of Northern Boundary are $789,592 (2009 - $1,927,161) and of the Southern Boundary are $720,609 (2009 - $1,807,126) as at March 31, 2010.

5. Minimum fund balances:

In line with Chapter IX – 'Financial Regulations' Section F of the Pacific Salmon Commission By-laws, the total expenditures of the Trusts should not exceed the total income from the Principal. The Principal was the amount provided at the point of constitution of the Trusts and was US $74,837,400 from the Government of the United States of America and CAD $250,000 from the Government of Canada in the Northern Boundary and US $64,902,400 from the Government of the United States of America and CAD $250,000 from the Government of Canada in the Southern Boundary. As at March 31, 2010, the Northern and Southern Funds were in excess of the minimum balances.

6. Administrative services:

The Commission charges fees for administrative services to the Trusts representing an allocation of Commission salaries and benefits expenses incurred on behalf of the Trusts.

7. Capital disclosures:

The Trusts' capital consists of their fund balances. The Trusts objective when managing capital is to safeguard their assets and to ensure that adequate capital is managed for future requirements. The procedures in place to achieve these goals include establishing effective internal controls, the review and approval of annual budgets and ongoing review of interim financial statements by the board of directors.

8. Related Parties:

The Trusts' only related parties are the Commission and the Contracting Parties. During the fiscal year ended March 31, 2010, the Trusts' provided funding for projects totaling $135,525 (2009 - $117,099) to the Commission.

As at March 31, 2010, the Trusts have a net receivable from the Commission of $7,086 (2009 - $217).

9. Financial instruments:

(a) Credit risk:

Credit risk is the risk that a third party to a financial instrument might fail to meet its obligations under the terms of the financial instrument. For cash investments, due from the Pacific Salmon Commission and interest receivable, the Trusts' credit risk is limited to the carrying value on the statement of financial position. Management does not believe that the Trusts' are subject to any significant concentration of credit risk.

(b) Liquidity risk:

Liquidity risk is the risk that an entity will not be able to meet its obligations associated with financial liabilities.

The Trusts manage liquidity risk by maintaining adequate cash and investment revenues. The Trusts' monitor the cash flow in to ensure that the fund balances are maintained at a sufficient level in line with the Treaty.

(c) Interest rate risk:

The Trusts are not exposed to interest rate risk as it does not have liabilities that incur interest.

10. Comparative figures

Certain comparative figures have been reclassified to conform with the financial statement presentation adopted in the current year.

Appendices

Appendix A

Appointment of Officers for 2009/2010

Effective December 1, 2009 a new slate of officers for the Pacific Salmon Commission was identified as follows:

OFFICE	COUNTRY	REPRESENTATIVE
Commission Chair	U.S.	Larry Rutter
Commission Vice-Chair	Can	Paul Sprout
Fraser River Panel Chair	U.S.	Kyle Adicks
Fraser River Panel Vice-Chair	Can	Barry Rosenberger
Northern Panel Chair	U.S.	Gordon Williams
Northern Panel Vice-Chair	Can.	Dave Einarson
Southern Panel Chair	U.S.	Terry Williams
Southern Panel Vice-Chair	Can.	Don Radford
Transboundary Panel Chair	U.S.	Dr. John Clark
Transboundary Panel Vice-Chair	Can.	Frank Quinn
Stan. Comm. on F&A - Chair	U.S.	W. Ron Allen
Stan. Comm. on F&A - Vice-Chair	Can.	Paul Macgillivray
Stan. Comm. on Scientific Cooperation - Chair	Can.	Dr. Laura Richards
Stan. Comm. on Scientific Cooperation - Vice-Chair	U.S.	Steve Pennoyer
Technical Committee on Data Sharing - Co-Chair	U.S.	Dr. Norma Jean Sands
Technical Committee on Data Sharing - Co-Chair	Can.	Chuck Parken
Fraser River Panel Technical Committee - Co-Chair	U.S.	Gary Graves
Fraser River Panel Technical Committee - Co-Chair	Can.	Ann-Marie Huang
Northern Boundary Technical Committee - Co-Chair	U.S.	Glen Oliver
Northern Boundary Technical Committee - Co-Chair	Can.	David Peacock
Transboundary Technical Committee - Co-Chair	U.S.	Scott Kelley
Transboundary Technical Committee - Co-Chair	Can.	Sandy Johnson
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	U.S.	Ron Josephson
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	Can.	Briar Young
Joint Technical Committee on Chinook - Co-Chair	U.S.	John Carlile
Joint Technical Committee on Chinook - Co-Chair	Can.	Chuck Parken
Joint Technical Committee on Coho - Co-Chair	U.S.	Dr. Gary Morishima
Joint Technical Committee on Coho - Co-Chair	Can.	Dr. Arlene Tompkins
Joint Technical Committee on Chum - Co-Chair	U.S.	Kit Rawson
Joint Technical Committee on Chum - Co-Chair	Can.	Pieter Van Will
Selective Fishery Evaluation Committee - Co-Chair	U.S.	Dr. Gary Morishima
Selective Fishery Evaluation Committee - Co-Chair	Can.	Dr. Gayle Brown
Chinook Interface Group Co-Chair	U.S.	Dr. Jeffrey Koenings
Chinook Interface Group Co-chair	Can.	Gerry Kristianson

Appendix B

Approved Budget FY 2010/2011

APPROVED BUDGET 2010/2011

1	**INCOME**	
A.	Contribution from Canada	$1,786,031
B.	Contribution from U.S.	$1,786,031
	Sub total	$3,572,062
C.	Carry-over from 2009/2010	$202,797
D.	Interest	$7,000
E.	Other income	$0
F.	Total Income	$3,781,859
2	**EXPENDITURES**	
A.	1. Permanent Salaries and Benefits	$2,550,070
	2. Temporary Salaries and Benefits	$243,815
	3. Total Salaries and Benefits	$2,793,885
B.	Travel	$144,482
C.	Rents, Communications, Utilities	$150,166
D.	Printing and Publications	$16,500
E.	Contractual Services	$544,294
F.	Supplies and Materials	$45,690
G.	Equipment	$86,842
H.	Total Expenditures	$3,781,859
3	**BALANCE (DEFICIT)**	$0

Appendix C

Pacific Salmon Commission Secretariat Staff as of March 31, 2010

EXECUTIVE OFFICE

Don Kowal
Executive Secretary

Teri Tarita
Records Administrator/Librarian

Kimberly Bartlett
Secretary

Vicki Ryall
Meeting Planner

Kathy Mulholland
Information Technology Manager

Sandi Gibson
Information Technology Support Specialist

FINANCE & ADMINISTRATION

Kenneth N. Medlock
Controller

Angus Mackay
Fund Coordinator

Bonnie Dalziel
Accountant

Victor Keong
Program Assistant
Restoration & Enhancement Funds

FISHERY MANAGEMENT

Mike Lapointe
Chief Biologist

Catherine Michielsens
Quantitative Biologist

Ian Guthrie
Head, Stock Identification Group

Steve Latham
Stock Idendtification Biologist, Sockeye

Bruce White
Stock Identification Biologist, Pinks

Zac Semeniuk
Salmon Technician

Maxine Forrest
Senior Scale Analyst

Julie Sellars
Assistant Scale Analyst

Holly Anozie
Scale Lab Assistant

Jim Cave
Head, Stock Monitoring Group

Keith Forrest
Test Fishing Biologist

Yunbo Xie
Hydroacoustics Scientist

Andrew Gray
Hydroacoustics Biologist

Fiona Martens
Hydroacoustic Technician

Jacqueline Nelitz
Hydroacoustic Technician

Appendix D

Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 2010

1. STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

Mr. Paul Macgillivray (Vice-Chair)
Ms. Wellsley Hamilton
Ms. Chantal Lamadeleine
Mr. Roy Neighbor

Mr. W. Ron Allen(Chair)
Mr. David Bedford
Mr. Roy Elicker
Ms. Natalie Howard
Mr. Mike Matylewich
Ms. Cheryl Ryder

Staff

Mr. Don Kowal (ex. Officio)

Editorial Board

Ms. Wellsley Hamilton

Ms. Cheryl Ryder

Staff

Mr. Don Kowal (ex. Officio)

2. FRASER PANEL

Mr. Barry Rosenberger (Vice-Chair)
Mr. Chris Ashton
Mr. Mike Griswold
Chief Ken Malloway
Mr. Rob Morley
Mr. John Murray

Mr. Kyle Adicks (Chair)
Mr. Robert F. Kehoe
Ms. Lorraine Loomis
Mr. Tim Tynan

FRASER RIVER PANEL - ALTERNATES

Mr. Brian Assu
Mr. Randy Brahniuk
Mr. Les Rombough
Mr. Peter Sakich
Mr. Marcel Shepert

Mr. Ronald G. Charles
Mr. Jack R. Giard
Mr. John Long

3. SOUTHERN PANEL

Mr. Don Radford (Vice-Chair)
Mr. Don Hall
Mr. Paul Kershaw
Mr. John Legate
Mr. Jeremy Maynard
Mr. Paul Rickard
Mr. Terry R. Williams (Chair)
Mr. Burnie Bohn
Mr. Larry Carpenter
Mr. Peter Dygert
Mr. James E. Harp
Mr. John Long

SOUTHERN PANEL - ALTERNATES

Mr. Rod Cootes
Mr. Les Jantz
Mr. Gordon McEachen
Ms. Marilyn Murphy
Mr. Bill Pirie
Mr. Errol Sam
Mr. Ron Boyce
Mr. Randy Settler
Mr. Brad Thompson
Mr. Ron Warren
Mr. Andy Whitener
Mr. Keith Wilkinson

4. NORTHERN PANEL

Mr. Dave Einarson (Vice-Chair)
Mr. Chris Barnes
Mr. Chris Cue
Mr. Bill de Greef
Mr. John McCulloch
Ms. Joy Thorkelson
Mr. Gordon Williams (Chair)
Mr. William F. Auger
Mr. Peter Hagen
Mr. Howard Pendell
Mr. Russell Thomas
Mr. Robert M. Thorstenson

NORTHERN PANEL - ALTERNATES

Mr. Rick Haugan
Mr. Greg Knox
Mr. Mel Kotyk
Chief Harry Nyce Sr.
Mr. Tom Protheroe
Mr. John Carle
Mr. Mitchell Eide
Mr. Arnold Enge
Mr. Brian Frenette
Mr. Dennis Longstreth

5. TRANSBOUNDARY PANEL

Mr. Frank Quinn (Vice-Chair)
Ms. Cheri Frocklage
Ms. Louise Gordon
Ms. Jennifer Gould
Ms. Nancy Kendel
Mr. Wolf Riedl
Ms. Linaya Workman
Dr. John H. Clark (Chair)
Mr. James Becker
Mr. Rod Brown
Mr. Arnold Enge
Mr. Gary Gray
Mr. Peter Hagen
Ms. Dale Kelley

6. STANDING COMMITTEE ON SCIENTIFIC COOPERATION

Dr. Laura Richards (Chair)
Dr. Dick Beamish
Mr. Steve Pennoyer (Vice-Chair)
Dr. David Hankin

7. NORTHERN FUND COMMITTEE

Mr. Mel Kotyk (Co-Chair)
Mr. Ron Fowler
Mr. Frank Quinn
Mr. Doug Mecum (Acting Co-Chair)
Mr. James E. Bacon
Mr. David Bedford

8. SOUTHERN FUND COMMITTEE

Mr. Don Radford (Co-Chair)
Dr. Don Hall
Mr. Mike Griswold
Mr. Larry Peck
Mr. Olney Patt Jr.
Mr. Larry Rutter

9. JOINT TECHNICAL COMMITTEE ON CHINOOK

Mr. Chuck Parken (Co-Chair)
Mr. Richard Bailey
Dr. Gayle Brown
Ms. Diana Dobson
Mr. Roger Dunlop
Ms. Dawn Lewis
Mr. Peter Nicklin
Ms. Teresa Ryan
Mr. Julian Sturhahn
Dr. Arlene Tompkins
Mr. Ivan Winther
Mr. Howie Wright
Mr. John Carlile (Co-Chair)
Dr. Marianna Alexandersdottir
Dr. David Bernard
Mr. Ryan Briscoe
Dr. John H. Clark
Mr. Ethan Clemons
Mr. Tim Dalton
Mr. Gary R. Freitag
Mr. Edgar Jones
Dr. Robert Kope
Mr. Larry LaVoy
Mr. Yong-Woo Lee
Mr. Brian Lynch
Ms. Marianne McClure
Mr. Scott McPherson
Dr. Gary S. Morishima
Mr. James F. Packer
Mr. Rishi Sharma
Mr. William Templin
Dr. Ken Warheit
Mr. Alex C. Wertheimer
Mr. Henry J. Yuen

10. JOINT TECHNICAL COMMITTEE ON COHO

Dr. Arlene Tompkins (Co-Chair)
Mr. Steve Baillie
Mr. Michael Chamberlain
Mr. Wilf Luedke

Dr. Gary S. Morishima (Co-Chair)
Ms. Carrie Cook-Tabor
Mr. Craig Foster
Mr. Robert A. Hayman
Mr. Jeff Haymes
Dr. Peter W. Lawson
Mr. Bill Patton
Mr. James B. Scott
Dr. Laurie Weitkamp

(Northern Coho)

Dr. John H. Clark
Ms. Michele Masuda
Mr. Leon D. Shaul

11. JOINT TECHNICAL COMMITTEE ON CHUM

Mr. Pieter Van Will (Co-Chair)
Ms. Kim Charlie
Ms. Sue Grant
Ms. Melanie Sullivan
Mr. Joe Tadey

Ms. Rebecca Bernard
Ms. Amy Seiders
Dr. Gary Winans

12. TECHNICAL COMMITTEE ON DATA SHARING

Mr. Chuck Parken (Co-Chair)
Ms. Roberta Cook
Ms. Kathryn Fraser

Dr. Norma Jean Sands (Co-Chair)
Mr. P. Brodie Cox
Mr. Ron Josephson
Mr. Mike Matylewich
Dr. Gary S. Morishima
Mrs. Amy Seiders

Working Group on Data Standards

Ms. Kathryn Fraser
Ms. Brenda Ridgway

Mr. Timothy Frawley
Dr. H. Mark Engelking
Ms. Susan Markey
Mr. George Nandor
Mr. Ken Phillipson

13. FRASER RIVER PANEL TECHNICAL COMMITTEE

Ms. Ann-Marie Huang (Co-Chair)
Ms. Sue Grant
Ms. Diana McHugh
Mr. Matt Mortimer
Mr. Jamie Scroggie
Mr. Mike Staley

Mr. Gary Graves (Co-Chair)
Ms. Peggy Busby

14. NORTHERN BOUNDARY TECHNICAL COMMITTEE

Mr. David Peacock (Co-Chair)
Mr. Dana Atagi
Mr. Steve Cox-Rogers
Mr. Allen Gottesfeld
Mr. Mark Potyrala

Mr. Glen Oliver (Co-Chair)
Mr. William Heard
Mr. Steve Heinl
Ms. Michelle Masuda
Mr. Bo Meredith
Ms. Anne Reynolds
Ms. Haixue Shen
Mr. Roy Volk
Mr. Scott Walker

15. SELECTIVE FISHERY EVALUATION COMMITTEE

Dr. Gayle Brown (Co-Chair)
Ms. Roberta Cook

Dr. Gary S. Morishima (Co-Chair)
Dr. Marianna Alexandersdottir
Mr. Shaun Clements
Ms. Carrie Cook-Tabor
Dr. Annette Hoffmann
Mr. Kirt Hughes
Mr. Ken Johnson
Mr. Ron Josephson
Mr. Mark Kimbel
Ms. Marianne McClure
Mr. George Nandor
Mr. Ron Olson
Dr. Kristen Ryding
Dr. Norma Jean Sands
Mr. Rishi Sharma

16. TRANSBOUNDARY TECHNICAL COMMITTEE

Mr. Sandy Johnston (Co-Chair)
Mr. Ian Boyce
Mr. Richard Erhardt
Mr. Pete Etherton
Mr. Doug Lofthouse
Mr. Brian Mercer
Mr. Bill Waugh

Mr. Scott Kelley (Co-Chair)
Mr. Jim Andel
Mr. Scott Forbes
Ms. Sara Gilk
Ms. Kathleen A. Jensen
Mr. Edgar Jones
Mr. Kevin Monagle
Mr. Keith Pahlke
Mr. Troy Thynes
Mr. Gordon Woods

ENHANCEMENT SUB-COMMITTEE

Mr. Briar Young (Co-Chair)
Dr. Kim Hyatt

Mr. Ron Josephson (Co-Chair)
Mr. John Joyce
Mr. Eric Prestegard
Mr. Garold Pryor

17. JOINT CHINOOK INTERFACE GROUP

Mr. Gerry Kristianson (Co-Chair)
Mr. Ron Fowler
Mr. Russ Jones

Mr. David Bedford
Dr. Jeffrey P. Koenings
Mr. Olney Patt Jr.

18. NATIONAL CORRESPONDENTS

Ms. Wellsley Hamilton

Ms. Cheryl Ryder